

AD-A104 401

NAVAL MATERIAL COMMAND WASHINGTON DC
NAVY TECHNOLOGY TRANSFER PROGRAM FY 79 SUMMARY STATISTICS.(U)
1980

F/6 5/1

UNCLASSIFIED

1-2



11

U.S. NAVY

2

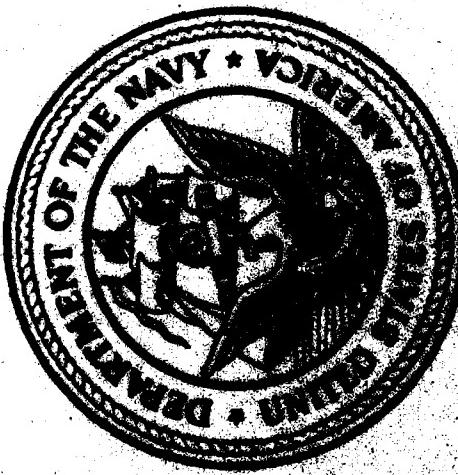
LEVEL II
REF ID: A65125

SUMMARY
STATISTICS

DTIC
REF ID: A65125
SEP 17 1981

D

REF ID: A65125



Cleared for public release;
Distribution unlimited

AD A104401

REF ID: A65125

UNCLASSIFIED

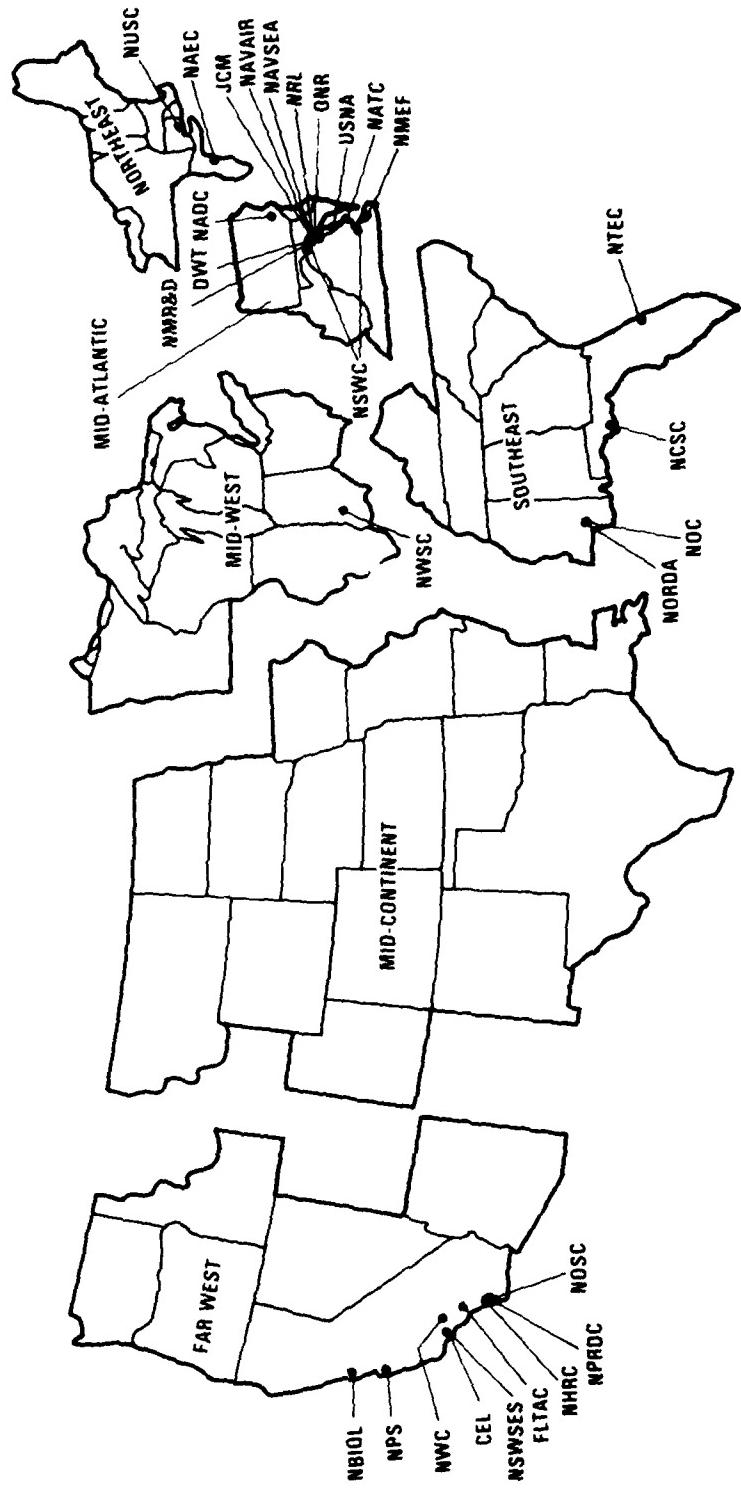
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM		
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER		
4. TITLE (and Subtitle) Navy Technology Transfer Program FY 79 Summary Statistics		5. TYPE OF REPORT & PERIOD COVERED Annual/FY 1979 <i>Rept</i>		
7. AUTHOR(s)	6. PERFORMING ORG. REPORT NUMBER			
9. PERFORMING ORGANIZATION NAME AND ADDRESS Headquarters Naval Material Command (MAT 078) Washington, DC 20360		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 65804N 20835-SL		
11. CONTROLLING OFFICE NAME AND ADDRESS <i>(16) Z 0835</i>		12. REPORT DATE <i>(11) 1980</i>		
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) <i>(13) 183</i>		13. NUMBER OF PAGES 1 Vol.		
16. DISTRIBUTION STATEMENT (of this Report)		15. SECURITY CLASS. (of this report) UNCLASSIFIED		
		16. DECLASSIFICATION/DOWNGRADING SCHEDULE		
<p style="text-align: center;">DISTRIBUTION STATEMENT</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>Approved for public release;</td></tr> <tr><td>Distribution Unlimited</td></tr> </table>			Approved for public release;	Distribution Unlimited
Approved for public release;				
Distribution Unlimited				
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) Cleared for public release; Distribution unlimited				
18. SUPPLEMENTARY NOTES				
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Navy; Technology Transfer				
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This book summarizes the 261 projects, which the Navy undertook in FY 1979 for sponsors from federal agencies (includes DOD), state and local governments, industry and small businesses, and non-profit institutions. The Program also provided unique services not in competition with the private sector. The book's scope does not encompass controls or foreign technology transfer in any sense.				

FY 1979 TECHNOLOGY TRANSFER PROJECTS--BY GEOGRAPHICAL AREA

Accession For		NUMBER OF PROJECTS
By	Distribution/ Availability Codes	
NTIS GRA&I	<input checked="" type="checkbox"/>	
DTIC TAB	<input type="checkbox"/>	
Unannounced	<input type="checkbox"/>	
Justification		
	Aval and/or Special	H

REGION	NUMBER OF PERFORMING ACTIVITIES	NUMBER OF PROJECTS
Far West	9	93
Mid-Continent	--	--
Mid-West	1	2
Northeast	2	11
Mid-Atlantic	12	117
Southeast	4	38



FOREWORD

This publication provides details about the FY 1979 Navy Technology Transfer Program. The contents of the book are derived from the reports submitted by Navy activities engaged in technology transfer. These reports also are the basis for the annual report to the Secretary of the Navy required by SECNAVINST 5700.14 and OPNAVINST 5700.13.

This book summarizes the 261 projects, which the Navy undertook in FY 1979 for sponsors from federal agencies (includes DOD), state and local governments, industry and small businesses, and nonprofit institutions. The Program also provided unique services not available from the private sector and not in competition with the private sector. The book's scope does not encompass export controls or foreign technology transfer in any sense.

The Navy instituted a formal Technology Transfer Program in 1972, as a result of successful experimental technology transfer programs organized in the late 1960s and early 1970s. The program is chartered "to establish a systematic and comprehensive policy for the transfer of appropriate technology... to the civilian sector and for the identification and cooperative development of coming technologies of both military and civilian interest." The Technology Transfer Program has been oriented toward local government and the public sector, in general, and is now also emphasizing programs for small business and industry in cooperation with such organizations as the Department of Commerce and the National Science Foundation.

Substantial benefits were realized through this program during FY 1979. New product markets were opened, for example, by transferring ocean farm technology to industry. The Technology Transfer Program enhanced the improvement of existing products and processes and promoted standardization. The Government-Industry Data Exchange Program documented savings of over \$24 million in cost avoidance by American industry in Calendar Year 1978. Navy technology transfer included such fundamental and important areas as firefighting, medical, and pollution abatement technology to the civilian sector. Results were constructive and illustrated the continuing potential of the Navy Technology Transfer Program.

TABLE OF CONTENTS

	<u>Pages</u>
Foreword	i
Section 1. How To Use This Book	1-1--1-3
Section 2. FY 1979 Technology Transfer Summary Statistics	2-1--2-63
Section 3. FY 1979 Technology Transfer Projects, Listed by Technological Area	3-1--3-33
Section 4. FY 1979 Technology Transfer Projects, Listed by Performing Activity	4-1--4-44
Section 5. FY 1979 Inventions and Patents	5-1--5-8
Index I FY 1979 Technology Transfer Projects, Indexed by Sponsors	I-1--I-8
Appendix A Navy Technology Transfer Focal Points	A-1--A-8
Appendix B FY 1979 Technology Transfer Projects, Lists of Sponsors	B-1--B-8
Appendix C Abbreviations and Acronyms	C-1--C-2

SECTION 1

HOW TO USE THIS BOOK

This section acquaints the reader with the other major sections of the book, noting information that the reader can obtain from each section and alerting the reader to any idiosyncrasies of the information.

An internal table of contents appears at the beginning of each major section of the document (with the exceptions of Appendices A and C). These internal tables of contents itemize information available in the larger sections.

Changes have been made to increase the amount of information accessed to the reader. Comments, criticisms, or suggestions for further improvements are strongly encouraged and should be forwarded to MAT 078.

Section 2: FY 1979 Technology Transfer Summary Statistics

This section provides a condensed statistical overview of the Navy Technology Transfer Program. The tables organize the data by type of sponsor, individual sponsors, technological area, and performing activity.

The number of projects in tables that are organized around individual sponsors will be higher than the actual total, since joint sponsors received credit as if each had individually sponsored the project.

Section 3: FY 1979 Technology Transfer Projects, Listed by Technological Area

Section 3 lists all reported technology transfer projects by the technological area that best describes the project. Projects are loosely grouped within technological area by type of sponsor (federal first, state and local, industry and small business, and nonprofit institution). Details provided include: project description, a note on Navy technology applied, a progress report, and funding and man-year levels for FY 1979 and FY 1980 (estimated).

A '0' in funding or man-year columns can indicate a reported '0' or a nonresponse.

Technological area categories are generally self-explanatory. Technological guidance generally includes projects that offered across-the-technological-board advice on technological problems requiring solutions.

Section 4: FY 1979 Technology Transfer Projects, Listed by Performing Activity

Section 4 lists all technology projects by the particular laboratory or activity that undertook the project. Projects are listed under each activity alphabetically by technological area. Details provided include project description, a notation on Navy technology applied, progress report, and funding and man-year allocations for FY 1979 and FY 1980 (estimated).

A '0' in funding or man-year columns can indicate a reported '0' or a nonresponse.

Section 5: FY 1979 Inventions and Patents

This section describes all reported patent applications and granted patents for FY 1979, listing them alphabetically by technological areas (same as those used in Section 3). Details include the patent application or patent number, purpose of the patent, and potential commercial applications.

INDEX 1: FY 1979 Technology Transfer Projects, Indexed by Sponsors

The index is keyed to Sections 5 and 6, which list all reported technology transfer projects by technological area and performing activity, respectively.

The index alphabetically lists individual sponsors within type-of-sponsor categories (federal, state and local, industry and small business, nonprofit institution). The index indicates which pages contain projects funded by individual sponsors.

Appendix A: Navy Technology Transfer Focal Points

Appendix A lists Navy activities participating in the Technology Transfer Program and provides addresses and phone numbers (commercial and Autovon) for all activities.

This appendix also identifies each activity's Technology Transfer Focal Point, who is the person to contact for further information about the activity's technology transfer projects/capabilities.

Names of activities in this section are current.

Appendix B: FY 1979 Technology Transfer Projects, List of Sponsors

Appendix B identifies all sponsors of FY 1979 technology transfer projects, alphabetically listing them within type-of-sponsor categories (federal, state and local, industry and small business, nonprofit institution).

Appendix C: Abbreviations and Acronyms

Appendix E notes all abbreviations and acronyms used in this document and provides the corresponding complete names.

Abbreviations are listed alphabetically by their abbreviated form.

SECTION 2

TABLE OF CONTENTS

	<u>Pages</u>
Table 1. Summary of FY 1979 Technology Transfer Projects, Listed by Type of Sponsor and Technological Area	2-2--2-6
Table 2. Summary of FY 1979 Technology Transfer Projects, Listed by Type of Sponsor and Performing Activity	2-7--2-12
Table 3. Summary of FY 1979 Technology Transfer Projects, Listed by Technological Area and Type of Sponsor	2-13--2-14
Table 4. Summary of FY 1979 Technology Transfer Projects, Listed by Performing Activity and Type of Sponsor	2-15--2-17
Table 5. Summary of FY 1979 Technology Transfer Projects, Listed by Performing Activity and Technological Area	2-18--2-22
Table 6. Summary of FY 1979 Technology Transfer Projects, Listed by Individual Sponsor and Technological Area	2-23--2-36
Table 7. Summary of FY 1979 Technology Transfer Projects, Listed by Individual Sponsor and Performing Activity	2-37--2-50
Table 8. Summary of FY 1979 Technology Transfer Projects, Listed by Technological Area and Performing Activity	2-51--2-63

SECTION 2

TABLE 1

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TYPE OF SPONSOR AND TECHNOLOGICAL AREA

FEDERAL SPONSORS	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Analysis and Testing		36	5891	5253	49.3	45.2
Communications		17	2606	2750	31.7	26.9
Computer Technology		14	3132	3380	29.3	26.7
Energy		22	2901	2156	26.5	25.9
Environment		16	1225	932	14.4	9.5
Fire and Safety		8	201	199	2.4	2.1
General Assistance		9	250	255	1.9	1.5
Health and Medicine		23	946	1212	14.2	6.8
Instrumentation		19	1678	1134	16.9	11.4
Law Enforcement		3	1282	2150	4.2	7.0
Marine Technology		13	892	657	9.0	4.8
Technological Guidance		10	3360	2985	34.0	34.2
Transportation		17	5774	19750	37.4	26.3
SUBTOTAL:		207	30138	42813	271.2	228.3

SECTION 2

TABLE 1

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TYPE OF SPONSOR AND TECHNOLOGICAL AREA

FOREIGN SPONSORS	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Energy		1	0	0	0.0	0.0
Analysis and Testing		1	0	0	0.0	0.0
SUBTOTAL:		2	0	0	0.0	0.0

SECTION 2

TABLE 1

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TYPE OF SPONSOR AND TECHNOLOGICAL AREA

INDUSTRY AND SMALL BUSINESS SPONSORS	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Analysis and Testing		12	418	119	1.5
Health and Medicine		1	40	0	0.1
Instrumentation		7	.18	.36	0.0
Marine Technology		2	0	1	0.1*
General Assistance		1	0	0	0.0
SUBTOTAL:		23	476	156	1.7
					1.5

SECTION 2

TABLE 1

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TYPE OF SPONSOR AND TECHNOLOGICAL AREA

NONPROFIT INSTITUTION SPONSORS	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Analysis and Testing		2	20	0	0.3 0.0
Health and Medicine		2	1	1	0.1 0.1
Technological Guidance		4	48	15	1.0 0.0
Marine Technology		2	12	0	0.2 0.0
Communications		1	0	0	0.0 0.0
Energy		2	0	0	0.0 0.0
Environment		1	15	0	0.0 0.0
General Assistance		1	40	40	1.0 1.0
SUBTOTAL:		15	136	56	2.6 1.1

SECTION 2

TABLE 1

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TYPE OF SPONSOR AND TECHNOLOGICAL AREA

STATE AND LOCAL SPONSORS	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
	Environment	2	18	0	0.2	0.0
	Health and Medicine	2	0	0	0.1	0.1
	Instrumentation	1	0	1	0.0	0.0
	Technological Guidance	5	63	60	2.1	2.0
	General Assistance	1	20	20	0.3	0.3
	Marine Technology	1	51	0	1.0	0.0
	Computer Technology	1	0	0	0.0	0.0
	Fire and Safety	1	0	0	0.0	0.0
	SUBTOTAL:	14	152	82	3.7	2.4
	TOTAL:	261	30902	43107	279.2	233.3

SECTION 2

TABLE 2

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TYPE OF SPONSOR AND PERFORMING ACTIVITY

<u>FEDERAL SPONSORS</u>	<u>PERFORMING ACTIVITY</u>	<u>NUMBER OF PROJECTS</u>	<u>FUNDING (\$K)</u>		<u>MAN-YEARS FY79</u>	<u>FY80</u>
			<u>FY79</u>	<u>FY80</u>		
Civil Engineering Laboratory		6	929	238	3.5	2.0
David W. Taylor Naval Ship Research and Development Center		23	5617	21073	34.1	34.6
Government-Industry Data Exchange Program		1	1700	2000	10.0	11.0
Joint Cruise Missiles Project Office		2	0	0	0.0	0.0
Naval Air Development Center		4	1331	420	8.0	1.6
Naval Air Engineering Center		2	46	47	1.5	1.5
Naval Air Systems Command		5	425	125	9.0	3.0
Naval Air Test Station		1	0	0	0.0	0.0
Naval Biosciences Laboratory, Naval Supply Center		3	173	30	3.5	0.8
Naval Coastal Systems Center		4	1812	2692	8.5	11.7
Naval Health Research Center		7	30	4	0.8	0.5
Naval Mine Engineering Facility		1	4	0	0.1	0.0
Naval Ocean Research and Development Activity		9	1648	1203	15.7	10.8
Naval Ocean Systems Center		19	3284	1949	29.9	16.0

SECTION 2

TABLE 2

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TYPE OF SPONSOR AND PERFORMING ACTIVITY

FEDERAL SPONSORS (Continued)

PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
		FY79	FY80	FY79	FY80
Naval Oceanographic Office	10	114	63	6.3	6.2
Naval Postgraduate School	3	33	0	0.4	0.0
Naval Research and Development Command	9	46	1071	6.2	4.5
Naval Research Laboratory	36	5272	6159	50.8	52.4
Naval Sea Systems Command	4	2930	2400	36.0	30.0
Naval Ship Weapons Engineering Station	3	46	50	1.0	1.0
Naval Surface Weapons Center	11	870	542	10.1	6.0
Naval Training Equipment Center	3	425	225	8.5	4.5
Naval Underwater Systems Center	1	0	0	0.0	0.0
Naval Weapons Center	20	2108	1620	12.8	10.9
Naval Weapons Support Center	2	0	0	0.0	0.0
Navy Personnel Research and Development Center	2	0	30	0.0	1.0
Office of Naval Research	14	834	873	14.1	16.3
U.S. Naval Academy	2	21	0	0.4	0.0
SUBTOTAL:	207	30138	42814	271.2	238.3

SECTION 2

TABLE 2

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TYPE OF SPONSOR AND PERFORMING ACTIVITY

FOREIGN SPONSORS

<u>PERFORMING ACTIVITY</u>	<u>NUMBER OF PROJECTS</u>	<u>FUNDING (\$K)</u>		<u>MAN-YEARS</u>
		<u>FY79</u>	<u>FY80</u>	
Naval Air Engineering	1	0	0	0.0
Naval Oceanographic Office	1	0	0	0.0
SUBTOTAL:	2	0	0	0.0

SECTION 2

TABLE 3

ACTIVITY	PERFORMING SPONSOR AND LISTEN BY	TYPE OF SPONSOR	TRANSPORT PROJECTS	TRANSFER PROJECTS	TURNAROUND PROJECTS	ENVIRONMENTAL PROJECTS	1970	1979	SUMMARY
----------	----------------------------------	-----------------	--------------------	-------------------	---------------------	------------------------	------	------	---------

INDUSTRY AND SMALL BUSINESS SPONSORS

PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
		FY79	FY80	FY79	FY80
David W. Taylor	1	4	95	0.1	0.9
Naval Health Research Center	1	40	0	0.1	0.1
Naval Ocean Systems Center	1	22	24	0.5	0.5
Naval Oceanographic Office	9	18	37	0.1	0.0
Naval Sea Systems Command	1	0	0	0.0	0.0
Naval Weapons Center	10	<u>392</u>	<u>0</u>	<u>0.9</u>	<u>0.0</u>
SUBTOTAL:	23	476	156	1.7	1.5

SUBTOTAL:

SECTION 2

TABLE 2

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TYPE OF SPONSOR AND PERFORMING ACTIVITY

NONPROFIT INSTITUTION SPONSORS

<u>PERFORMING ACTIVITY</u>	<u>NUMBER OF PROJECTS</u>	<u>FUNDING (\$K)</u>		<u>MAN-YEARS</u>
		<u>FY79</u>	<u>FY80</u>	<u>FY79</u>
David W. Taylor	1	10	0	0.1
Naval Health Research Center	3	1	1	0.1
Naval Ocean Systems Center	3	37	15	1.4
Naval Oceanographic Office	1	0	0	0.0
Naval Research Laboratory	2	40	40	1.0
Naval Underwater Systems Center	4	33	0	0.0
Naval Weapons Center	1	15	0	0.0
SUBTOTAL:	15	136	56	2.6
				1.1

SECTION 2

TABLE 2

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TYPE OF SPONSOR AND PERFORMING ACTIVITY

STATE AND LOCAL SPONSORS

<u>PERFORMING ACTIVITY</u>	<u>NUMBER OF PROJECTS</u>	<u>FUNDING (\$K)</u>		<u>MAN-YEARS</u>
		<u>FY79</u>	<u>FY80</u>	<u>FY79</u>
Naval Health Research Center	1	0	0	0.1
Naval Ocean Systems Center	2	54	0	1.1
Naval Oceanographic Office	1	0	1	0.0
Naval Postgraduate School	3	0	0	0.0
Naval Underwater Systems Center	3	0	0	0.0
Naval Weapons Center	2	18	0	0.2
Navy Personnel Research and Development Center	1	60	60	2.0
U.S. Naval Academy	<u>1</u>	<u>20</u>	<u>20</u>	<u>0.3</u>
SUBTOTAL:	14	152	81	3.7
TOTAL:	261	30902	43107	233.3

SECTION 2

TABLE 3

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND TYPE OF SPONSOR

TECHNOLOGICAL AREA	TYPE OF SPONSOR	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Analysis and Testing	Federal	36	5891	5253	49.3
	Foreign	1	0	0	0.0
	Industry	12	418	119	1.5
	Nonprofit	2	20	0	0.3
Communications	Subtotal	51	6329	5372	51.1
	Federal	17	2606	2750	31.7
	Nonprofit	1	0	0	0.0
Computer Technology	Subtotal	18	2606	2750	31.7
	Federal	14	3132	3380	29.3
	State	1	0	0	0.0
Energy	Subtotal	15	3132	3380	29.3
	Federal	22	2901	2156	26.5
	Nonprofit	1	0	0	0.0
Environment	Subtotal	25	2901	2156	26.5
	Federal	16	1225	932	14.4
	Nonprofit	1	15	0	0.0
Fire and Safety	State	2	18	0	0.2
	Subtotal	19	1258	932	14.6
	Federal	8	201	199	2.4
General Assistance	State	1	0	0	0.0
	Subtotal	9	201	199	2.4
	Federal	9	250	255	1.9
	Industry	1	0	0	0.0
Nonprofit	Subtotal	1	40	40	1.0
	State	1	20	21	0.3
	Subtotal	12	310	316	2.8

SECTION 2

TABLE 3

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND TYPE OF SPONSOR

TECHNOLOGICAL AREA	TYPE OF SPONSOR	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Health and Medicine	Federal	23	946	1212	14.2	6.8
	Industry	1	40	0	0.1	0.1
	Nonprofit	2	1	1	0.1	0.1
	State	2	0	0	0.1	0.1
Instrumentation	Subtotal	28	987	1213	14.5	7.1
	Federal	19	1678	1134	16.9	11.4
	Industry	7	18	36	0.0	0.0
	State	1	0	1	0.0	0.0
Law Enforcement	Subtotal	27	1696	1171	16.9	11.4
	Federal	3	1282	2150	4.2	7.0
	Subtotal	3	1282	2150	4.2	7.0
	Subtotal	13	892	657	9.0	4.8
Marine Technology	Federal	2	0	1	0.1	0.0
	Industry	2	12	0	0.2	0.0
	Nonprofit	1	51	0	1.0	0.0
	State	18	955	658	10.3	4.8
Technological Guidance	Federal	10	3360	2985	34.0	34.2
	Nonprofit	4	48	15	1.0	0.0
	State	5	63	60	2.1	2.0
	Subtotal	19	3471	3060	37.1	36.2
Transportation	Federal	17	5774	19750	37.4	26.3
	Subtotal	17	5774	19750	37.4	26.3
	Total	261	30902	43107	279.2	233.3

SECTION 2

TABLE 4

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY PERFORMING ACTIVITY AND TYPE OF SPONSOR

PERFORMING ACTIVITY	TYPE OF SPONSOR	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Civil Engineering Laboratory	Federal	Subtotal 6	929	238	3.5 3.5 2.0
David W. Taylor	Federal	23	5617	21073	34.1
	Industry	1	4	95	0.1
	Nonprofit	1	10	0	0.1
	Subtotal	25	5631	21168	34.3 35.5
Government-Industry Data Exchange Program	Federal	Subtotal 1	1700	2000	10.0 11.0
Joint Cruise Missiles Project Office	Federal	Subtotal 2	0	0	0.0 0.0
Naval Air Development Center	Federal	Subtotal 4	1331	420	8.0 8.0
Naval Air Engineering Center	Federal Foreign	2	46	47	1.5 1.6
	Subtotal	1	0	0	0.0
Naval Air Systems Command	Federal	Subtotal 5	425	125	9.0 9.0
Naval Air Test Station	Federal	Subtotal 1	0	0	0.0 0.0
Naval Biosciences Laboratory	Federal	Subtotal 3	173	30	3.5 3.5 0.8
Naval Coastal Systems Center	Federal	Subtotal 4	1812	2692	8.5 8.5 11.7
Naval Health Research Center	Federal	7	30	4	0.8 0.1 0.1 0.1 0.1 0.1 0.8
	Industry	1	40	0	0.1
	Nonprofit	3	1	1	0.1
	State	1	0	0	0.1 0.1 0.1
	Subtotal	12	71	5	1.1

SECTION 2

TABLE 4

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY PERFORMING ACTIVITY AND TYPE OF SPONSOR

PERFORMING ACTIVITY	TYPE OF SPONSOR	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Naval Mine Engineering Facility	Federal	Subtotal	1	4	0.1 0.1 0.0
Naval Ocean Research and Development Activity	Federal	Subtotal	9	1648	1203 1203 15.7 10.8
Naval Ocean Systems Center	Federal Industry Nonprofit State	19	3284	1949 22 37 54 3397	29.9 0.5 1.4 0.0 1.1 32.9 16.5
Naval Oceanographic Office	Federal Foreign Industry Nonprofit State	10	114	62 0 18 0 132	6.3 0.0 37 0.1 100 6.4 6.2
Naval Postgraduate School	Federal State	3	33	0 0 0	0.4 0.0 0.4 0.0
Naval Research and Development Command	Federal	Subtotal	9	486	1071 1071 6.2 4.5
Naval Research Laboratory	Federal Nonprofit	36	5272	6159 40 5312	50.8 1.0 51.8 52.4 1.0 53.4
Naval Sea Systems Command	Federal Industry	4	2930	2400 0 2400	36.0 0.0 36.0 30.0
Naval Ship Weapon Systems Engineering Station	Federal	Subtotal	3	46	50 50 1.0 1.0

SECTION 2

TABLE 4

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY PERFORMING ACTIVITY AND TYPE OF SPONSOR

PERFORMING ACTIVITY	TYPE OF SPONSOR	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY80
			FY79	FY80	
Naval Surface Weapons Center	Federal	11	870	542	10.1 8.0
	Subtotal	11	870	542	10.1 8.0
Naval Training Equipment Center	Federal	3	425	225	8.5 4.5
	Subtotal	3	425	225	8.5 4.5
Naval Underwater Systems Center	Federal	1	0	0	0.0 0.0
Nonprofit		4	33	0	0.0 0.0
State		3	0	0	0.0 0.0
	Subtotal	8	33	0	0.0 0.0
Naval Weapons Center	Federal	20	2108	1620	12.8 10.9
Industry		10	392	0	0.9 0.0
Nonprofit		1	15	0	0.0 0.0
State		2	18	0	0.2 0.0
	Subtotal	33	2533	1620	13.9 10.9
Naval Weapons Support Center	Federal	2	0	0	0.0 0.0
	Subtotal	2	0	0	0.0 0.0
Navy Personnel Research and Development Center	Federal	2	0	30	0.0 1.0
	State	1	60	60	2.0 2.0
	Subtotal	3	60	90	2.0 3.0
Office of Naval Research	Federal	14	834	873	14.1 16.3
	Subtotal	14	834	873	14.1 16.3
U.S. Naval Academy	Federal	2	21	0	0.4 0.0
	State	1	20	21	0.3 0.3
	Subtotal	3	41	21	0.7 0.3
	Total	261	30902	43107	279.2 233.3

SECTION 2

TABLE 5

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY PERFORMING ACTIVITY AND TECHNOLOGICAL AREA

PERFORMING ACTIVITY	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Civil Engineering Laboratory					
Energy	Health and Medicine	1	616	120	0.9
Health and Medicine		1	138	83	1.2
Marine Technology		1	50	0	0.4
Transportation		3	125	35	1.0
	Subtotal	6	929	238	2.0
David W. Taylor					
Analysis and Testing		10	891	717	8.8
Computer Technology		1	400	700	2.0
Energy		1	35	104	0.3
Environment		5	749	590	7.9
Fire and Safety		2	70	94	0.9
Marine Technology		2	211	248	2.0
Technological Guidance		3	175	315	2.4
Transportation		1	3100	18400	10.0
	Subtotal	25	5631	21168	34.3
Government-Industry Data Exchange Program					
Joint Cruise Missiles Project Office		1	1700	2000	10.0
	Subtotal	1	1700	2000	10.0
Naval Air Development Center					
Computer Technology		1	0	0	0.0
Health and Medicine		1	26	0	0.0
Instrumentation		1	350	0	2.4
Technological Guidance		1	955	420	3.6
	Subtotal	4	1331	420	8.0
Naval Air Engineering Center					
Analysis and Testing		2	46	47	1.5
Environment		1	0	0	0.0
	Subtotal	3	46	47	1.5

SECTION 2

TABLE 5

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY PERFORMING ACTIVITY AND TECHNOLOGICAL AREA

PERFORMING ACTIVITY	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Naval Air Systems Command	Communications	1	0	0	0.0
	Fire and Safety	1	0	0	0.0
	General Assistance	1	35	35	1.0
	Instrumentation	1	30	30	1.0
	Transportation	1	360	60	7.0
	Subtotal	5	425	125	3.0
Naval Air Test Center	Fire and Safety	1	0	0	0.0
	Subtotal	1	0	0	0.0
	Environment	2	143	0	2.7
Naval Biosciences Laboratory	Health and Medicine	1	30	30	0.8
	Subtotal	3	173	30	0.8
	Energy	1	300	152	4.0
Naval Coastal Systems Center	Environment	1	95	150	0.5
	Instrumentation	1	197	240	1.0
	Law Enforcement	1	1220	2150	3.0
	Subtotal	4	1812	2692	7.0
	Health and Medicine	11	71	5	1.1
	Technological Guidance	1	0	0	0.0
Naval Health Research Center	Subtotal	12	71	5	0.8
	Health and Medicine	9	486	1071	6.2
	Subtotal	9	486	1071	6.2
Naval Medical Research and Development Command	Analysis and Testing	1	4	0	0.1
	Subtotal	1	4	0	0.1
	Computer Technology	1	283	237	1.0
Naval Mine Engineering Facility	Energy	1	300	75	2.0
	Instrumentation	6	1005	811	11.9
	Marine Technology	1	60	80	0.8
	Subtotal	9	1648	1203	15.7
Naval Ocean Research and Development Facility	Computer Technology	1	283	237	1.0
	Energy	1	300	75	1.0
	Instrumentation	6	1005	811	8.2
	Subtotal	9	1648	1203	10.8

SECTION 2

TABLE 5
SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY PERFORMING ACTIVITY AND TECHNOLOGICAL AREA

PERFORMING ACTIVITY	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Naval Ocean Systems Center	Analysis and Testing	4	400	124	4.0 1.5
	Communications	1	50	0	0.5 0.0
	Computer Technology	3	1254	611	12.3 5.0
	Environment	2	106	170	1.1 1.6
	Fire and Safety	1	15	0	0.2 0.0
	Health and Medicine	2	192	14	2.3 0.1
	Law Enforcement	1	12	0	0.2 0.0
	Marine Technology	6	568	329	5.6 2.2
	Technological Guidance	2	18	15	1.1 0.0
	Transportation	3	782	725	5.6 6.1
	Subtotal	25	3397	1988	32.9 16.5
Naval Oceanographic Office	Communications	1	0	0	4.0 4.0
	Computer Technology	1	32	32	1.0 1.0
	Energy	2	10	5	0.3 0.2
	Environment	1	22	22	1.0 1.0
	Instrumentation	13	68	40	0.0 0.0
	Marine Technology	4	0	1	0.1 0.0
	Subtotal	22	132	100	6.4 6.2
Naval Postgraduate School	Computer Technology	1	0	0	0.0 0.0
	Fire and Safety	1	0	0	0.0 0.0
	General Assistance	3	33	0	0.4 0.0
	Health and Medicine	1	0	0	0.0 0.0
	Subtotal	6	33	0	0.4 0.0
Naval Research Laboratory	Analysis and Testing	8	1042	1004	13.4 13.8
	Communications	9	2216	2630	21.0 20.9
	Computer Technology	2	434	1110	2.0 3.6
	Energy	9	1290	1405	14.1 14.0
	Fire and Safety	1	0	0	0.0 0.0
	General Assistance	3	40	40	1.0 1.0
	Health and Medicine	1	30	10	0.3 0.1
	Instrumentation	2	0	0	0.0 0.0
	Marine Technology	1	0	0	0.0 0.0
	Technological Guidance	1	0	0	0.0 0.0
	Transportation	1	260	0	0.0 0.0
	Subtotal	38	5312	6198	51.8 53.4

SECTION 2

TABLE 5

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY PERFORMING ACTIVITY AND TECHNOLOGICAL AREA

PERFORMING ACTIVITY	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Naval Sea Systems Command	General Assistance	1	0	0	0.0	0.0
	Technological Guidance	3	2230	2230	28.0	28.0
	Transportation	Subtotal	1	700	150	8.0
			5	2930	36.0	2.0
					36.0	30.0
Naval Ship Weapons Systems Engineering Station	Instrumentation	Subtotal	3	46	50	1.0
			3	46	50	1.0
Naval Surface Weapons Center	Analysis and Testing	2	80	80	1.1	1.1
	Computer Technology	1	300	220	3.2	3.3
	Energy	2	127	65	1.7	0.5
	Fire and Safety	1	16	5	0.3	0.1
	Law Enforcement	1	50	0	1.0	0.0
	Transportation	Subtotal	4	297	172	2.8
			11	870	542	3.0
					10.1	8.0
Naval Training Equipment Center	Communications	1	200	0	4.0	0.0
	Computer Technology	1	225	225	4.5	4.5
	Technological Guidance	Subtotal	1	0	0	0.0
			3	425	225	4.5
Naval Underwater Systems Center	Communications	1	0	0	0.0	0.0
	Energy	2	0	0	0.0	0.0
	Technological Guidance	Subtotal	5	33	0	0.0
			8	33	0	0.0
Naval Weapons Center	Analysis and Testing	22	2151	1400	12.1	10.4
	Energy	3	98	0	0.7	0.0
	Environment	4	88	0	0.4	0.0
	General Assistance	3	182	220	0.5	0.5
	Health and Medicine	Subtotal	1	14	0	0.0
			33	2633	1620	10.9
					13.9	10.9
Naval Weapons Support Center	Communications	1	0	0	0.0	0.0
	Environment	Subtotal	1	0	0	0.0
			2	0	0	0.0
					0	0.0

SECTION 2

TABLE 5

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY PERFORMING ACTIVITY AND TECHNOLOGICAL AREA

PERFORMING ACTIVITY	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Navy Personnel Research and Development Center	Energy Technological Guidance	1	0	30	0.0	1.0
	Subtotal	2	60	60	2.0	2.0
		3	60	90		3.0
Office of Naval Research	Analysis and Testing	1	15	0	0.1	0.0
	Communications	3	140	120	2.2	2.0
	Computer Technology	3	204	245	3.3	4.3
	Energy	2	125	200	2.5	5.0
	Environment	2	55	0	1.0	0.0
	Fire and Safety	1	100	100	1.0	1.0
	Marine Technology	1	45	0	0.0	0.0
	Transportation	1	150	208	3.0	4.0
	Subtotal	14	831	873	14.7	16.3
U.S. Naval Academy	General Assistance	1	20	21	0.3	0.3
	Marine Technology	2	21	0	0.4	0.0
	Subtotal	3	41	21	0.7	0.3

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

FEDERAL SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Federal		2	70	70	1.0 1.0
Maritime Administration	Analysis and Testing	3	106	0	1.2 0.0
	Energy	<u>1</u> <u>4</u>	<u>35</u> <u>141</u>	<u>104</u> <u>104</u>	<u>0.3</u> <u>1.5</u>
	Subtotal				<u>0.7</u>
Federal Railroad Administration	Analysis and Testing	1	100	100	0.5 0.5
	Subtotal	<u>1</u>	<u>100</u>	<u>100</u>	<u>0.5</u>
U.S. Coast Guard	Analysis and Testing	4	1035	527	10.1 6.0
	Computer Technology	1	352	111	3.9 1.0
	Environment	4	249	260	3.2 2.8
	Health and Medicine	1	86	0	1.1 0.0
	Instrumentation	1	350	0	2.0 0.0
	Marine Technology	1	211	248	2.0 2.1
	Technological Guidance	3	1095	465	5.4 2.1
	Transportation	<u>2</u>	<u>698</u>	<u>650</u>	<u>5.5</u> <u>5.6</u>
	Subtotal	<u>14</u>	<u>3358</u>	<u>2161</u>	<u>27.9</u> <u>18.5</u>
Department of Commerce	Analysis and Testing	1	0	0	0.0 0.0
	Energy	1	10	5	0.3 0.2
	Instrumentation	<u>1</u> <u>3</u>	<u>2</u> <u>12</u>	<u>3</u> <u>8</u>	<u>0.0</u> <u>0.2</u>
Naval Sea Systems Command	Analysis and Testing	2	6	95	0.2 0.9
	Communications	2	495	495	<u>-0.0</u> <u>9.5</u>
	Computer Technology	2	700	920	5.2 7.3
	Energy	2	365	310	3.9 3.7
	Environment	1	0	0	0.0 0.0
	Fire and Safety	1	0	0	0.0 0.0
	Health and Medicine	1	39	0	0.7 0.7
	Instrumentation	2	26	30	0.7 0.7
	Marine Technology	1	0	0	0.0 0.0
	Technological Guidance	4	2230	2250	28.0 28.0
	Transportation	<u>1</u>	<u>700</u>	<u>150</u>	<u>8.0</u> <u>2.0</u>
	Subtotal	<u>17</u>	<u>4155</u>	<u>4155</u>	<u>55.9</u> <u>51.2</u>

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

FEDERAL SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Joint Logistics Command	Analysis and Testing	1	1700	2000	10.0 10.0 11.0 11.0
NASA Langley Research Center	Analysis and Testing	Subtotal 1	1700	2000	
NASA Ames Research Center	Analysis and Testing Fire and Safety	3	173	46	2.0 0.2 0.0 0.5
NASA Goddard Space Flight Center	Analysis and Testing	Subtotal 4	15 188	46	2.2 0.5
NASA Lewis Research Center	Computer Technology	1	37	50	0.5 0.5
NASA Lyndon B. Johnson Space Center	Energy Health and Medicine Transportation	1	52	65	0.7 2.4 0.0 0.5
NASA	Analysis and Testing	1	37	38	0.3 0.2 0.3
NASA-Kennedy Space Center		Subtotal 2	55 92	38	0.5 0.3
NASA-George C. Marshall Space Flight Center	Transportation	1	116	0	1.6 1.6 0.0
		Subtotal 1	116	0	0.0

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

FEDERAL SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Department of Transportation	Analysis and Testing	2	366	517	2.3
	Communications	1	50	0	0.5
	Health and Medicine	1	138	83	1.2
	Instrumentation	1	350	0	2.0
	Technological Guidance	1	955	420	3.6
	Transportation	2	101	83	0.4
Department of Energy	Subtotal	8	1960	1103	10.0
	Analysis and Testing	2	917	508	3.1
	Energy	8	1662	892	10.6
	Environment	2	180	50	2.8
	Marine Technology	1	50	0	0.4
	Subtotal	13	2808	1450	16.9
Department of Energy Solar Energy Research Institute	Analysis and Testing	2	84	141	0.8
	Subtotal	2	84	141	0.8
	Analysis and Testing	1	70	0	1.0
	Subtotal	1	70	0	1.0
	Analysis and Testing	1	100	100	1.4
	Subtotal	1	100	100	1.4
Department of Energy Lawrence Livermore Laboratory	Energy	1	27	0	0.1
	Subtotal	1	27	0	0.1
	Analysis and Testing	1	61	47	1.6
	Communications	1	0	0	0.0
	Computer Technology	2	434	1110	2.0
	Energy	1	155	150	2.0
Department of Energy Los Alamos Scientific Laboratory	Fire and Safety	2	0	0	0.0
	General Assistance	1	35	35	1.0
	Instrumentation	2	227	270	2.0
	Transportation	2	620	60	2.2
	Subtotal	13	1532	1672	15.6
	Subtotal	13	1532	1672	15.6

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

FEDERAL SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Nuclear Regulatory Commission	Analysis and Testing	1	2	8	0.0
	Energy	1	250	250	3.5
	Fire and Safety	1	16	5	0.3
	Subtotal	3	268	263	3.1
Office of Naval Research	Analysis and Testing	6	1005	936	12.2
	Communications	5	259	165	3.8
	Computer Technology	3	204	245	3.3
	Energy	3	275	500	4.5
	Environment	3	68	0	1.2
	Fire and Safety	1	100	100	1.0
	Health and Medicine	1	25	0	0.3
	Marine Technology	2	63	0	1.3
	Transportation	1	150	208	4.0
	Subtotal	25	2149	2154	33.3
Strategic Systems Project Office	Analysis and Testing	1	35	60	0.5
	Communications	1	35	60	0.5
CNO Security Assistant Training Program	Communications	1	0	0	0.6
Naval Material Command	Computer Technology	1	200	0	4.0
	Environment	1	225	225	4.5
	General Assistance	2	0	0	0.0
	Subtotal	5	430	225	4.5
Naval Electronic Systems Command	Communications	3	1602	2000	9.6
	Instrumentation	1	160	0	0.0
Rome Air Development Center	Communications	3	490	400	4.0
	Subtotal	3	490	400	4.0

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

FEDERAL SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
EPA National Environmental Research Center	Energy Environment	1	46	0	0.4 0.0
	Subtotal	1/2	95 141	150 150	0.5 1.0 0.9 1.0
Naval Research Laboratory	Communications	1	0	0	0.0 0.0
	General Assistance	1	0	0	0.0 0.0
	Instrumentation	2	12 12	21 21	0.2 0.3 0.2 0.3
	Subtotal	4			
Defense Mapping Agency	Computer Technology	1	283	237	1.0 1.0
	Instrumentation	4	48 331	0 237	0.0 0.0 1.0 1.0
	Subtotal	5			
Naval Avionics Command	Computer Technology	1	32	32	1.0 1.0
	Environment	1	22	22	1.0 1.0
	Instrumentation	3	0 54	0 54	0.0 0.0 2.0 2.0
	Subtotal	5			
National Science Foundation	Computer Technology	1	70	0	0.6 0.0
	General Assistance	1	182 252	220 220	0.5 0.5 1.1 1.1
	Subtotal	2			
U.S. Postal Service	Computer Technology	1	832 832	500 500	7.8 4.0 7.8 4.0
	Subtotal	1			
Federal Laboratory Consortium	Energy Technical Guidance	1	0	30	0.0 1.0
	Subtotal	1/2	0	30	0.0 1.0
National Oceanic and Atmospheric Administration	Environment Marine Technology	1	66 3 69	50 0 50	0.5 0.4 0.1 0.0 0.6 0.4
	Subtotal	3			
Defense Construction Supply Center	Fire and Safety	2	70 70	94 94	0.9 1.0 0.9 1.0
	Subtotal	2			

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

FEDERAL SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
IRED/TU	General Assistance	2	0	0	0.0 0.0
Naval Facilities Engineering Command	General Assistance Marine Technology	Subtotal 1 2 1 3	33 18 51	0 0 0	0.4 0.3 0.7 0.0
U.S. Forest Service	General Assistance	Subtotal 1 1	0	0	0.0 0.0
Sea Grant College Program	Health and Medicine	Subtotal 1 1	30 30	30 30	0.8 0.8
Veterans Administration	Health and Medicine	Subtotal 2 2	107 107	15 15	1.3 1.3
Navy Medical Research and Development Command	Health and Medicine	Subtotal 10 10	511 511	1071 1071	6.5 6.5
Various	Health and Medicine	Subtotal 4 4	4	3	0.2 0.2
U.S. Army Instrumentation for Behavioral Sciences	Health and Medicine	Subtotal 1 1	0	0	0.0 0.0
Health, Education, and Welfare	Health and Medicine	Subtotal 1 1	14 14	0 0	0.2 0.2
Food and Drug Administration	Health and Medicine	Subtotal 1 1	30 30	20 20	0.3 0.3
Naval Ocean Research and Development Activity	Instrumentation Marine Technology	Subtotal 4 5	923 60 383	790 80 370	11.0 0.8 11.8

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

FEDERAL SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY'79 FY'80
			FY'79	FY'80	
Naval Postgraduate School	General Assistance	Subtotal 1	5	0	0.1 0.1 0.0
NOAA Data Buoy Office	Instrumentation	Subtotal 2	72	3	0.7 0.7 0.0
NATO Seasparrow	Instrumentation	Subtotal 1	20	20	0.3 0.3 0.3
Physical Security Systems ESD/AFSC/USAP	Law Enforcement	Subtotal 1	1220	2150	3.0 3.0 7.0
DOT Federal Highway Administration	Law Enforcement	Subtotal 1	50	0	1.0 1.0 0.0
Department of Justice Immigration and Naturalization Service	Law Enforcement	Subtotal 1	12	0	0.2 0.2 0.0
Department of Interior U.S. Geological Survey	Marine Technology	Subtotal 2	282	329	2.3 2.3 2.2
Department of Interior Bureau and Land Management	Marine Technology	Subtotal 1	95	0	0.3 0.3 0.0
National Marine Fisheries	Marine Technology	Subtotal 1	12	0	0.2 0.2 0.0
Defense Nuclear Agency	Technological Guidance	Subtotal 1	35	270	0.6 0.6 4.0
Naval Training Equipment Center	Technological Guidance	Subtotal 1	0	0	0.0 0.0 0.0
Pedetral Aviation Administration	Transportation	Subtotal 2	108	27	0.7 0.7 0.1

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

FEDERAL SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Defense Advanced Research Projects Agency	Transportation	Subtotal $\frac{1}{1}$	3100	18400	10.0	10.0
U.S. Air Force	Transportation	Subtotal $\frac{1}{1}$	0	0	0.0	0.0
Joint Cruise Missiles Project Office	Transportation	Subtotal $\frac{1}{1}$	0	0	0.0	0.0
DOT Federal Railroad Administration	Transportation	Subtotal $\frac{1}{1}$	250	120	2.0	2.0
DOT Federal Office Hazardous Material	Transportation	Subtotal $\frac{1}{1}$	6	12	0.2	0.4

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

FOREIGN SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Great Britain	Analysis and Testing	1	0	0	0.0	0.0
	Subtotal	1	0	0	0.0	0.0
International Government	Energy	1	0	0	0.0	0.0
	Subtotal	1	0	0	0.0	0.0

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

INDUSTRY SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Various	General Assistance	Subtotal 1	0	0	0.0 0.0 0.0
Industry	Analysis and Testing	Subtotal 1	22	24	0.5 0.5 0.5
Avondale	Analysis and Testing Instrumentation	Subtotal 1	4	95	0.1 0.0 0.1
Royal Industries, Inc.	Analysis and Testing	Subtotal 1	33	0	0.1 0.1 0.0
Explosive Technical, Inc.	Analysis and Testing	Subtotal 1	14	0	0.1 0.1 0.0
Hughes Aircraft	Analysis and Testing	Subtotal 2	20	0	0.0 0.0 0.0
General Dynamics Convair	Analysis and Testing	Subtotal 1	11	0	0.2 0.2 0.0
Aerojet Ordnance and Manufacturing Company	Analysis and Testing	Subtotal 1	58	0	0.1 0.1 0.0
Voight Helicopter Inc.	Analysis and Testing	Subtotal 1	111	0	0.1 0.1 0.0
Pirestone Coated Fabrics, Inc.	Analysis and Testing	Subtotal 1	72	0	0.0 0.0 0.0
Martin-Marietta Aerospace	Analysis and Testing	Subtotal 1	60	0	0.2 0.2 0.0
American Safety Flight System	Analysis and Testing	Subtotal 1	13	0	0.0 0.0 0.0

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

INDUSTRY SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS
			FY79	FY80	
Upjohn International and Navy	Health and Medicine	Subtotal 1	40 40	0 0	0.1 0.1
Production Control Systems, Inc.	Instrumentation	Subtotal 1	1 1	2 2	0.0 0.0
Bay Technical Associates, Inc.	Instrumentation	Subtotal 1	0 0	0 0	0.0 0.0
Louisiana Power and Light	Instrumentation	Subtotal 1	5 5	10 10	0.0 0.0
Mississippi Power and Light	Instrumentation	Subtotal 1	2 2	10 10	0.0 0.0
MRS Manufacturing Company	Instrumentation	Subtotal 1	1 1	3 3	0.0 0.0
NUS Corporation	Instrumentation	Subtotal 1	8 8	10 10	0.0 0.0
Raychem Corporation	Marine Technology	Subtotal 1	0 0	0 0	0.1 0.1
Bechman Instruments, Inc.	Marine Technology	Subtotal 1	0 0	1 1	0.0 0.0

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

NONPROFIT SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Social Naval Architecture and Engineering	Analysis and Testing	Subtotal 1	10	0	0.1	0.0
Applied Physics Laboratory/ Johns Hopkins University	Analysis and Testing Environment	1	10	0	0.2	0.0
		Subtotal 2	15	0	0.0	0.0
			25	0	0.2	0.0
Local Government Assistance Task Force (PLC-Far West Region)	Health and Medicine	1	1	1	0.1	0.1
		Subtotal 1	1	1	0.1	0.1
Various POW Organizations	Health and Medicine	Subtotal 1	0	0	0.0	0.0
			0	0	0.0	0.0
Victoria Behavioral Research Assn., Ltd.	Technological Guidance	1	0	0	0.0	0.0
		Subtotal 1	0	0	0.0	0.0
CTIP	General Assistance Technological Guidance	1	40	40	1.0	1.0
		Subtotal 1	33	0	0.0	0.0
			73	40	1.0	1.0
NUSC New England Innovation Group, & Public Technology, Inc.	Technological Guidance Communications	1	0	0	0.0	0.0
		Subtotal 1	0	0	0.0	0.0
Pacific Northwest Innovation Group	Technological Guidance	1	15	15	1.0	1.0
		Subtotal 1	15	15	1.0	1.0
International Research Group on Wood Preservation	Marine Technology	1	0	0	0.0	0.0
		Subtotal 1	0	0	0.0	0.0
Institute for Acoustic Research	Marine Technology	Subtotal 1	0	0	0.0	0.0
			0	0	0.0	0.0
Rhode Island League of Cities and Towns	Communications	Subtotal 1	0	0	0.0	0.0
			0	0	0.0	0.0

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA

NONPROFIT SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
MUSC/University of Conn.	Energy	1	0	0	0.0	0.0
	Subtotal	1	0	0	0.0	0.0
Metal Properties Council	Energy	1	0	0	0.0	0.0
	Subtotal	1	0	0	0.0	0.0

SECTION 2

TABLE 6

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND TECHNOLOGICAL AREA.

STATE SPONSOR	TECHNOLOGICAL AREA	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS
			FY79	FY80	
Sanite Fe, NM	Computer Technology	1	0	0	0.0
Western Kansas Ground Water District #1	Environment	Subtotal 1	18	0	0.2
California Santa Barbara County	Environment	Subtotal 1	0	0	0.0
University of California BuMed & Surgery	Marine Technology Health and Medicine	1	51	0	0.0
City & County of San Diego	Technological Guidance	Subtotal 2	63	60	2.1
Carson City, Nevada	Fire and Safety Health and Medicine	1	0	0	0.0
Anne Arundel County Schools	General Assistance	Subtotal 1	20	21	0.3
South Carolina Wildlife and Marine Resources Department	Instrumentation	Subtotal 1	0	1	0.0
Connecticut General Assistance	Technological Guidance	Subtotal 1	0	0	0.0
Conference of Municipalities	Technological Guidance	Subtotal 1	0	0	0.0
Naval Underwater Systems Center	Technological Guidance	Subtotal 1	0	0	0.0

SECTION 2

TABLE 7
SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

FEDERAL SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Naval Air Systems Command	NAEC	1	46	47	1.5	1.5
	NRL	5	864	1260	4.2	5.6
	NAVAIR	5	425	125	9.0	3.0
	NATC	1	0	0	0.0	0.0
	NCSC	1	197	240	1.0	1.2
	Subtotal	13	1532	1672	15.7	11.3
Naval Material Command	NAEC	1	0	0	0.0	0.0
	NPS	1	5	0	0.1	0.0
	NRL	0	0	0	0.0	0.0
	NTEC	1	425	225	8.5	4.5
	Subtotal	5	430	225	8.6	4.5
Naval Facilities	NPS	2	33	0	0.4	0.0
	USNA	1	18	0	0.3	0.0
	Subtotal	3	51	0	0.7	0.0
National Oceanic & Atmospheric Administration	USNA	1	3	0	0.1	0.0
	NRL	1	0	0	0.0	0.0
	DWTR	1	66	50	0.5	0.4
	Subtotal	3	69	50	0.6	0.4
Naval Postgraduate School	NPS	1	5	0	0.1	0.0
	Subtotal	1	5	0	0.1	0.0
U.S. Forest Service	NPS	1	0	0	0.0	0.0
	Subtotal	1	0	0	0.0	0.0
Naval Sea Systems Command	DWTR	3	404	795	2.1	4.9
	NMFRP	1	4	0	0.1	0.0
	NSNSES	2	26	30	0.7	0.7
	NAVSEA	4	2930	2400	36.0	30.0
	NMSC	2	0	0	0.0	0.0
	NRL	5	860	805	13.9	13.2
	NSWC	1	300	220	3.2	3.3
	NMRED	1	39	0	0.7	0.0
	Subtotal	19	4563	4250	56.7	52.1

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

FEDERAL SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Federal Laboratory Consortium	NPRDC	3	62	90	2.0
	NDSC	1	0	0	0.0
U.S. Coast Guard	NDSC	Subtotal	62	90	2.0
	DWFT	7	1560	982	14.6
	NADC	8	1211	860	13.0
		Subtotal	1305	420	5.6
Veterans Administration	NDSC	2	4076	2261	1.6
	NERC	17			19.6
Department of Justice Immigration and Naturalization Services	NDSC	1	106	14	1.2
		Subtotal	1	1	0.1
U.S. Department Interior Bureau of Land Management	NDSC	1	12	0	0.2
		Subtotal	1	12	0.2
U.S. Geological Survey	NDSC	1	95	0	0.3
	NOC	1	95	0	0.0
		Subtotal	282	329	2.3
			0	0	0.0
			282	329	2.2
					2.2

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

FEDERAL SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
National Aeronautic and Space Administration, Kennedy Space Center	NWC	2	92	34	0.5	0.3
	NOSC	1	116	0	1.6	0.0
Ames Research Center	Subtotal	3	208	34	2.1	0.3
	NOSC	1	15	0	0.2	0.0
Langley Research Center	NWC	3	173	46	2.0	0.5
	Subtotal	4	188	46	2.2	0.5
Lyndon B. Johnson Center	NSWC	1	10	10	0.1	0.1
	Subtotal	1	10	10	0.1	0.1
George C. Marshall Space Flight Center	NSWC	2	61	70	0.8	0.6
	NADC	1	26	0	2.4	0.0
Goddard Space Flight Center	Subtotal	3	87	70	3.2	0.6
	NMC	1	32	35	0.5	0.5
Lewis Research Center	NSWC	1	32	35	0.5	0.5
	NADC	1	37	50	0.5	0.6
National Marine Fisheries	NOSC	1	12	0	0.2	0.0
	Subtotal	1	12	0	0.2	0.0
Department of Transportation	NOSC	2	134	75	0.6	0.5
	NWC	2	366	517	2.3	2.5
National Science Foundation	CEL	2	155	91	1.5	0.9
	NADC	2	1305	420	5.6	1.6
National Science Foundation	Subtotal	8	1960	1103	10.0	5.5
	NOSC	1	70	0	0.6	0.0
NPRDC	NWC	1	182	220	0.5	0.5
	Subtotal	3	312	60	2.0	2.5

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

FEDERAL SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
U.S. Postal Service					
NOSC		1	832	500	7.8 4.0
NSWC		1	75	0	1.0 0.0
NCSC		1	300	152	4.0 2.5
NBIOL		1	130	0	2.5 0.0
NORDA		1	300	75	2.0 1.0
NMC		2	917	508	3.1 3.5
	Subtotal	7	2554	1235	20.4 11.0
Department of Energy					
NRL		3	370	545	2.7 3.3
CEL		2	666	120	1.3 1.0
	Subtotal	5	1036	665	4.0 4.3
Safety/Isotape Fuel Branch					
NOSC		Subtotal	1	50	0.3 0.3
		Subtotal	1	50	0.3 0.3
Los Alamos Scientific Laboratory					
NMC		Subtotal	1	100	100 1.4
		Subtotal	1	100	100 1.4
Nevada Operations Office					
NMC		Subtotal	1	27	0 0.1
		Subtotal	1	27	0 0.1
Solar Energy Research Institute					
NMC		Subtotal	2	84	141 0.8
		Subtotal	2	84	141 0.8
Lawrence Livermore Laboratory					
NMC		Subtotal	1	70	0 1.0
		Subtotal	1	70	0 1.0
Department of Transportation					
Highway Administration					
NSWC		Subtotal	1	50	0 1.0
DWT		Subtotal	1	100	100 0.5
		Subtotal	2	150	150 0.5
Railroad Administration					
NSWC		Subtotal	1	250	120 2.0
		Subtotal	1	250	120 2.0
Hazardous Material					
NSWC		Subtotal	1	6	12 0.2
		Subtotal	1	6	12 0.2

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

FEDERAL SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Naval Training Equipment Center	NTEC	Subtotal	1	0	0	0
Independent Research and Development/Technology Utilization Office	NRC	Subtotal	2	0	0	0
Health, Education and Welfare	NHC	Subtotal	1	14 14	0 0	0.0 0.0
National Environmental Research (EPA) Center	NCSC	Subtotal	1 2	95 141	150 150	0.5 0.9
Sea Grant College Program	NEIOL	Subtotal	1	30 30	30 30	0.8 0.8
Joint Logistics Commanders	JLTAC	Subtotal	1	1700 1700	2000 2000	10.0 10.0
U.S. Air Force	JCM	Subtotal	1	0 0	0 0	0.0 0.0
Joint Cruise Missiles Project Office	JCM	Subtotal	1	0 0	0 0	0.0 0.0
Perkin Elmer	NRL	Subtotal	1	0 0	0 0	0.0 0.0
Federal	NSWC NUSC	Subtotal	1 2	0 70	0 70	1.0 1.0
Various	NERC	Subtotal	4 4	4 4	3 3	0.4 0.4

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

FEDERAL SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79	MAN-YEARS FY80
			FY79	FY80		
Naval Research Laboratory	NRL	3	0	0	0.0	0.0
	NORDA	1	12	21	0.2	0.3
	NB1OL	1	13	0	0.2	0.0
	Subtotal	5	25	21	0.4	0.3
Food and Drug Administration	NRL	1	30	10	0.3	0.1
Bureau of Radiological Health	Subtotal	1	30	10	0.3	0.1
Naval Electronics System Command	NRL	4	1602	2000	9.0	9.6
	Subtotal	4	1602	2000	9.0	9.6
Nuclear Regulatory Commission	NRL	2	252	258	3.5	3.0
	NSMC	1	16	5	0.3	0.1
	Subtotal	3	268	263	3.8	3.1
Office of Naval Research	NRL	8	1259	1221	16.7	17.0
	ONR	14	834	873	14.1	16.3
	NRFC	1	25	0	0.3	0.0
	Subtotal	23	2118	2094	31.1	33.3
Rome Air Development Center	NRL	2	0	0	0.0	0.0
	DRT	1	490	400	5.0	4.0
	Subtotal	3	490	400	5.0	4.0
Strategic Systems Project Office	NRL	1	35	60	0.5	0.6
	Subtotal	1	35	60	0.5	0.6
Navy NATO Seasparrow	NSNSES	1	20	20	0.3	0.3
	Subtotal	1	20	20	0.3	0.3
Federal Aviation Administration	NOSC	1	50	0	0.5	0.0
	CEL	2	108	27	0.7	0.2
	Subtotal	3	158	27	1.2	0.1
Naval Medical Research and Development Command	NR&D	10	511	351	6.5	4.5
	Subtotal	10	511	351	6.5	4.5

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

FEDERAL SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Defense Mapping Agency	NORDA	1	4	283	237	1.0
	NOC	5	48	0	0.0	0.0
	Subtotal	5	331	237	1.0	1.0
Chief Naval Operations Security Assistant Training Program	NOC	1	0	0	4.0	4.0
	Subtotal	1	0	0	4.0	4.0
Naval Avionics Command	NOC	5	54	54	2.0	2.0
	Subtotal	5	54	54	2.0	2.0
Department of Commerce	NORDA	1	10	5	0.3	0.2
	Subtotal	1	70	5	0.7	0.2
National Data Buoy Office	NORDA	2	80	5	1.0	0.2
	Subtotal	2	80	5	1.0	0.2
Physical Security Systems Directorate ESD/NRSC/USAF	NCSC	1	1220	2150	3.0	7.0
	Subtotal	1	1220	2150	3.0	7.0
U.S. Army Institute for Behavioral & Social Sciences	NHRC	1	0	0	0.0	0.0
	Subtotal	1	0	0	0.0	0.0
Defense Advanced Research Projects Agency	DWT	1	3100	18400	10.0	10.0
	Subtotal	1	3100	18400	10.0	10.0
Naval Ocean Research and Development Activity	NORDA	5	983	870	11.8	8.5
	Subtotal	5	983	870	11.8	8.5
Defense Construction Supply Center	DWT	1	60	67	0.8	0.8
	Subtotal	1	60	67	0.8	0.8
Defense General Supply Center	DWT	1	18	27	0.1	0.2
	Subtotal	1	18	27	0.1	0.2
Maritime Administration	DWT	4	141	104	1.5	0.7
	Subtotal	4	141	104	1.5	0.7

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

FEDERAL SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Department of Commerce	DWT	Subtotal	1	0	0	0.0
Navy	NHRC	Subtotal	1	40	0	0.1
			1	40	0	0.1

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

FOREIGN SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
International Government	NOC	1	0	0	0.0	0.0
	Subtotal	1	0	0	0.0	0.0
Great Britain	NABC	1	0	0	0.0	0.0
	Subtotal	1	0	0	0.0	0.0

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

INDUSTRY SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Industry			70	70	1.0 0.5 1.5
	NSWC	1	22	24	1.0 0.5 1.5
	NOSC	Subtotal	92	94	1.5 1.5
Various	NAVSEA	Subtotal	0	0	0.0 0.0 0.0
Production Control Systems Inc.	NOC	Subtotal	0	0	0.0 0.0 0.0
Avondale Shipyard, New Orleans	NOC	Subtotal	1	1	0.0 0.1 0.9
	D&T	Subtotal	4	95	0.1 0.1 0.9
Bay Technical Associates, Inc.	NOC	Subtotal	0	0	0.0 0.0 0.0
Louisiana Power & Light	NOC	Subtotal	5	10	0.0 0.0 0.0
Mississippi Power and Light	NOC	Subtotal	2	10	0.0 0.0 0.0
M-R-S Manufacturing Company	NOC	Subtotal	1	3	0.0 0.0 0.0
NUS Corporation	NOC	Subtotal	8	10	0.0 0.0 0.0
Raychem Corporation Houston	NOC	Subtotal	0	0	0.1 0.1 0.0
Beckman Instruments, Inc.	NOC	Subtotal	0	1	0.0 0.0 0.0

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

INDUSTRY SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Upjohn International	NOC	Subtotal	1	40	0	0.1
				40	0	0.1
Royal Industries, Inc.	NWC	Subtotal	1	33	0	0.1
				33	0	0.1
Explosive Technology, Inc.	NWC	Subtotal	1	14	0	0.1
				14	0	0.1
Hughes Aircraft	NWC	Subtotal	2	20	0	0.0
				20	0	0.0
General Dynamics Command	NWC	Subtotal	1	11	0	0.2
				11	0	0.2
Aerojet Ordnance & Manufacturing Co.	NWC	Subtotal	1	58	0	0.1
				58	0	0.1
Vought Helicopter Inc.	NWC	Subtotal	1	111	0	0.1
				111	0	0.1
Pirestone Coated Fabrics Company, Inc.	NWC	Subtotal	1	72	0	0.1
				72	0	0.1
Martin-Marietta Aerospace	NWC	Subtotal	1	60	0	0.2
				60	0	0.2
American Safety Flight System	NWC	Subtotal	1	13	0	0.0
				13	0	0.0

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

NONPROFIT SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS FY79 FY80
			FY79	FY80	
Society of Naval Architects and Engineers	DWT	1	10 10	0 0	0.1 0.1
Rhode Island League of Cities and Towns	NUSC	1	0 0	0 0	0.0 0.0
New England Innovation Group	NUSC	2	0 0	0 0	0.0 0.0
NUSC/University of Connecticut	NUSC	1	0 0	0 0	0.0 0.0
CTIP	NUSC	1	33 40 73	0 40 40	0.0 1.0 1.0
	NRL	2			
Public Technology, Inc.	NUSC	1	0 0	0 0	0.0 0.0
Metal Properties Council	NRL	1	0 0	0 0	0.0 0.0
Applied Physics Laboratory/ Johns Hopkins University	NOSC	1	10 10	0 0	0.2 0.2
Institute for Acoustic Research	NOSC	1	12 12	0 0	0.2 0.2
Pacific Northwest Innovations	NOSC	1	15 15	15 15	1.0 1.0
International Research Group on Wood Preservation	NDC	1	0 0	0 0	0.0 0.0
Local Government Assistance Task Force	NRIC	1	1 1	1 1	0.1 0.1

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

NONPROFIT SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS
			FY79	FY80	
Various POW Organizations	NHRC	1	0	0	0.0
	Subtotal	1	0	0	0.0
Victoria Behavioral Research Assn., LTD	NHRC	1	0	0	0.0
	Subtotal	1	0	0	0.0
Johns Hopkins University	MJC	1	15	0	0.0
	Subtotal	1	15	0	0.0

SECTION 2

TABLE 7

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY INDIVIDUAL SPONSOR AND PERFORMING ACTIVITY

STATE SPONSOR	PERFORMING ACTIVITY	NUMBER OF PROJECTS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
Anne Arundel County Schools	USNA	Subtotal	1 1	20 20	21 21	0.3 0.3
City and County of San Diego	NPRDC NDSC	Subtotal	1 1 2	60 3 63	60 0 60	2.0 0.1 2.1
University of California BuMed and Surgery	NDSC NHRC	Subtotal	1 1 2	51 0 51	0 0 0	1.0 0.1 1.1
Santa Fe, New Mexico	NPS	Subtotal	1 1	0 0	0 0	0.0 0.0
Carson City, Nevada	NPS	Subtotal	2 2	0 0	0 0	0.0 0.0
Connecticut General Assembly	NTUSC	Subtotal	1 1	0 0	0 0	0.0 0.0
Connecticut Conference of Municipalities	NTUSC	Subtotal	1 1	0 0	0 0	0.0 0.0
Naval Underwater Systems Center	NUUSC	Subtotal	1 1	0 0	0 0	0.0 0.0
Santa Barbara County	NWC	Subtotal	1 1	0 0	0 0	0.0 0.0
Western Kansas Ground Water District #1	NWC	Subtotal	1 1	18 18	0 0	0.2 0.2
South Carolina and Marine Resources Department	NOC	Subtotal	1 1	0 0	1 1	0.0 0.0

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

ANALYSIS AND TESTING PERFORMING ACTIVITY	PROJECTS	NUMBER OF SPONSORS	FUNDING (\$K)		MAN-YEARS	
			FY79	FY80	FY79	FY80
David W. Taylor	10	8	891	717	8.8	7.3
Government-Industry Data Exchange Program	1	1	1700	2000	10.0	11.0
Naval Fleet Analysis Center						
Naval Mine Engineering Facility	1	1	4	0	0.1	0.0
Naval Surface Weapons Center	2	2	80	80	1.0	1.0
Naval Weapons Center	22	20	2173	1400	12.1	10.4
Naval Ocean Systems Center	4	3	400	124	4.0	1.5
Naval Research Laboratory	8	5	1042	1004	13.4	13.8
Office of Naval Research	1	1	15	0	0.1	0.0
Naval Air Engineering Center	<u>2</u>	<u>2</u>	<u>46</u>	<u>47</u>	<u>1.5</u>	<u>1.5</u>
Subtotal	51	43	6351	5372	51.0	46.5

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

COMMUNICATIONS	PERFORMING ACTIVITY	NUMBER OF SPONSORS		FUNDING (\$K)		MAN-YEARS	
		PROJECTS	FY79	FY80	FY79	FY80	
Naval Air Systems Command		1	1	0	0	0.0	0.0
Naval Oceanographic Office		1	1	0	0	4.0	4.0
Naval Training Equipment Center		1	1	200	0	4.0	0.0
Naval Underwater Systems Center		1	3	0	0	0.0	0.0
Naval Weapons Support Center		1	1	0	0	0.0	0.0
Naval Ocean Systems Center		1	2	50	0	0.5	0.0
Naval Research Laboratory		9	5	2216	2630	21.0	20.9
Office of Naval Research		3	1	140	120	2.2	2.0
Subtotal		18	15	2606	2750	31.7	26.9

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

COMPUTER TECHNOLOGY	NUMBER OF PROJECTS		FUNDING (\$K)		MAN-YEARS	
		SPONSORS	FY79	FY80	FY79	FY80
David W. Taylor	1	1	400	700	2.0	4.0
Naval Air Development Center	1	1	0	0	0.0	0.0
Naval Ocean Research and Development Activity	1	1	283	237	1.0	1.0
Naval Oceanographic Office	1	1	32	32	1.0	1.0
Naval Surface Weapons Center	1	1	300	220	3.2	3.3
Naval Training Equipment Center	1	1	225	225	4.5	4.5
Naval Ocean Systems Center	3	3	1254	611	12.3	5.0
Naval Research Laboratory	2	1	434	1110	2.0	3.6
Office of Naval Research	3	1	204	245	3.3	3.3
Naval Postgraduate School	1	1	0	0	0.0	0.0
Subtotal	15	12	3132	3380	29.3	25.7

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

ENERGY PERFORMING ACTIVITY	NUMBER OF PROJECTS		FUNDING (\$K) FY79		MAN-YEARS FY79	
		SPONSORS	FY79	FY80	FY79	FY80
Civil Engineering Laboratory	1	2	616	120	0.9	1.0
David W. Taylor	1	1	35	104	0.3	0.7
Naval Coastal Systems Center	1	1	300	152	4.0	2.5
Naval Ocean Research and Development Command	1	1	300	75	2.0	1.0
Naval Oceanographic Office	2	2	10	5	0.3	0.2
Naval Surface Weapons Center	2	2	127	65	1.7	0.5
Naval Underwater Systems Center	2	2	0	0	0.0	0.0
Naval Weapons Center	3	3	98	0	0.7	0.0
Navy Personnel Research and Development Center	1	1	0	30	0.0	1.0
Naval Research Laboratory	9	6	1290	1405	14.1	13.2
Office of Naval Research	2	1	125	200	2.5	5.0
Subtotal	25	22	2901	2156	26.5	25.1

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

<u>ENVIRONMENT</u>	<u>PERFORMING ACTIVITY</u>	NUMBER OF PROJECTS	SPONSORS	FUNDING (\$K)		MAN-YEARS
				FY79	FY80	
David W. Taylor		5	3	749	590	7.9
Naval Biosciences Laboratory		2	2	143	0	2.7
Naval Coastal Systems Center		2	2	117	172	1.5
Naval Weapons Center		4	4	88	0	0.4
Naval Weapons Support Center		1	1	0	0	0.0
Naval Ocean Systems Center		2	2	106	170	1.1
Office of Naval Research		2	1	55	0	1.0
Naval Air Engineering Center		1	1	0	0	0.0
Subtotal		19	16	1258	932	14.6
						9.5

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

<u>FIRE AND SAFETY</u>	<u>NUMBER OF PROJECTS</u>		<u>FUNDING (\$K) FY79</u>		<u>MAN-YEARS FY79</u>	
	<u>SPONSORS</u>	<u>FY80</u>	<u>FY79</u>	<u>FY80</u>	<u>FY79</u>	<u>FY80</u>
David W. Taylor	2	2	70	94	0.9	1.0
Naval Air Systems Command	1	1	0	0	0.0	0.0
Naval Air Test Center	1	1	0	0	0.0	0.0
Naval Surface Weapons Center	1	1	16	5	0.3	0.1
Naval Ocean Systems Center	1	1	15	0	0.2	0.0
Naval Research Laboratory	1	1	0	0	0.0	0.0
Office of Naval Research	1	1	100	100	1.0	1.0
Naval Postgraduate School	1	1	0	0	0.0	0.0
Subtotal	9	9	201	199	2.4	2.1

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

GENERAL ASSISTANCE	PERFORMING ACTIVITY	NUMBER OF PROJECTS	SPONSORS	FUNDING (\$K)		MAN-YEARS	
				FY79	FY80	FY79	FY80
Naval Air Systems Command		1	1	35	35	1.0	1.0
Naval Sea Systems Command		1	1	0	0	0.0	0.0
Naval Weapons Center		3	2	182	220	0.5	0.5
U.S. Naval Academy		1	1	20	21	0.3	0.3
Naval Research Laboratory		3	4	40	40	1.0	1.0
Naval Postgraduate School		<u>3</u>	<u>5</u>	<u>33</u>	<u>0</u>	<u>0.4</u>	<u>0.0</u>
Subtotal	12	14		310	316	3.2	2.8

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

HEALTH AND MEDICINE PERFORMING ACTIVITY	NUMBER OF PROJECTS	NUMBER OF SPONSORS	FUNDING (\$K)		MAN-YEARS FY79	MAN-YEARS FY80
			FY79	FY80		
Civil Engineering Laboratory	1	1	138	83	1.2	0.9
Naval Air Development Center	1	1	26	0	2.4	0.0
Naval Biosciences Laboratory	1	1	30	30	0.8	0.8
Naval Health Research Center	11	9	71	5	1.1	0.8
Naval Medical Research and Development Command	9	2	486	1071	6.2	4.5
Naval Weapons Center	1	1	14	0	0.2	0.0
Naval Ocean Systems Center	2	2	192	14	2.3	0.1
Naval Research Laboratory	1	1	30	10	0.3	0.1
Naval Postgraduate School	1	1	0	0	0.0	0.0
Subtotal	28	19	987	1213	14.5	7.1

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

INSTRUMENTATION	PERFORMING ACTIVITY	NUMBER OF PROJECTS		FUNDING (\$K)		MAN-YEARS	
		SPONSORS	FY79	FY80	FY79	FY80	
	Naval Air Development Center	1	1	350	0	2.0	0.0
	Naval Air Systems Command	1	1	30	30	1.0	1.0
	Naval Coastal Systems Center	1	1	197	240	1.0	1.2
	Naval Ocean Research and Development Activity	6	4	1005	811	11.9	8.2
	Naval Oceanographic Office	13	12	68	39	0.0	0.0
	Naval Ship Weapon Systems Engineering Station	3	2	46	50	1.0	1.0
	Naval Research Laboratory	<u>2</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0.0</u>	<u>0.0</u>
	Subtotal	27	23	1696	1170	16.9	11.4

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

<u>LAW ENFORCEMENT</u>	<u>NUMBER OF PROJECTS</u>		<u>FUNDING (\$K)</u>		<u>MAN-YEARS</u>
	<u>PERFORMING ACTIVITY</u>	<u>SPONSORS</u>	<u>FY79</u>	<u>FY80</u>	
Naval Coastal Systems Center	1	1	1220	2150	3.0
Naval Surface Weapons Center	1	1	50	0	1.0
Naval Ocean Systems Center	1	1	12	0	0.2
Subtotal	3	3	1282	2150	4.2
					7.0

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

MARINE TECHNOLOGY	PERFORMING ACTIVITY	NUMBER OF PROJECTS	SPONSORS	FUNDING (\$K)		MAN-YEARS FY79 FY80
				FY79	FY80	
Civil Engineering Laboratory		1	1	50	0	0.4 0.0
David W. Taylor		2	2	211	248	2.0 2.0
Naval Ocean Research and Development Activity		1	1	60	80	0.8 0.6
Naval Oceanographic Office		4	4	0	1	0.1 0.0
U.S. Naval Academy		2	3	21	0	0.4 0.0
Naval Ocean Systems Center		6	6	568	329	5.6 2.2
Naval Research Laboratory		1	1	0	0	0.0 0.0
Office of Naval Research		— 1	— 1	— 45	— 0	— 1.0 0.0
Subtotal		18	19	955	658	10.3 4.8

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

TECHNOLOGICAL GUIDANCE PERFORMING ACTIVITY	NUMBER OF PROJECTS		FUNDING (\$K) FY79 FY80		MAN-YEARS FY79 FY80
		SPONSORS			
David W. Taylor	3	2	175	315	2.4 4.6
Naval Air Development Center	1	2	955	420	3.6 1.6
Naval Health Research Center	1	1	0	0	0.0 0.0
Naval Sea Systems Command	3	3	2230	2250	28.0 28.0
Naval Training Equipment Center	1	1	0	0	0.0 0.0
Naval Underwater Systems Center	5	5	33	0	0.0 0.0
Naval Personnel Research and Development Center	2	3	60	60	2.0 2.0
Naval Ocean Systems Center	2	2	18	15	1.1 0.0
Naval Research Laboratory	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0.0</u> <u>0.0</u>
Subtotal	19	20	3471	3060	37.1 36.2

SECTION 2

TABLE 8

SUMMARY OF FY 1979 TECHNOLOGY TRANSFER PROJECTS, LISTED BY TECHNOLOGICAL AREA AND PERFORMING ACTIVITY

TRANSPORTATION PERFORMING ACTIVITY	NUMBER OF PROJECTS		FUNDING (\$K)		MAN-YEARS	
		SPONSORS	FY79	FY80	FY79	FY80
Civil Engineering Laboratory	3	2	125	35	1.0	0.2
David W. Taylor	1	1	3100	18400	10.0	10.0
Joint Cruise Missiles Project Office	2	2	0	0	0.0	0.0
Naval Air Systems Command	1	1	360	60	7.0	1.0
Naval Sea Systems Command	1	1	700	150	8.0	2.0
Naval Surface Weapons Center	4	4	297	172	2.8	3.0
Naval Ocean Systems Center	3	2	782	725	5.6	6.1
Naval Research Laboratory	1	1	260	0	0.0	0.0
Office of Naval Research	1	1	150	208	3.0	4.0
Subtotal	17	15	5774	19750	37.4	26.3

SECTION 3

TABLE OF CONTENTS

	<u>Pages</u>
Technology Transfer Projects in the Area of Analysis and Testing	3-2--3-6
Technology Transfer Projects in the Area of Communications	3-7--3-8
Technology Transfer Projects in the Area of Computer Technology	3-9--3-10
Technology Transfer Projects in the Area of Energy	3-11--3-13
Technology Transfer Projects in the Area of Environment	3-14--3-16
Technology Transfer Projects in the Area of Fire and Safety	3-17
Technology Transfer Projects in the Area of General Assistance	3-18--3-19
Technology Transfer Projects in the Area of Health and Medicine	3-20--3-22
Technology Transfer Projects in the Area of Instrumentation	3-23--3-25
Technology Transfer Projects in the Area of Law Enforcement	3-26
Technology Transfer Projects in the Area of Marine Technology	3-27--3-28
Technology Transfer Projects in the Area of Technological Guidance	3-29--3-31
Technology Transfer Projects in the Area of Transportation	3-32--3-33

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
DWT 14	Analysis and Testing	Effect of Radial Load Distribution on Propeller Cavitation Erosion	Hydrodynamics	Cavitation erosion tests complete.	10	0	0.1	0.0	NP--Soc. Nav. Arch. and Engrs.
DWT 15	Analysis and Testing	Evaluation of Effectiveness of Protective Coatings for Propellers	Hydrodynamics, Propeller Coating	Procedures are being developed. Samples have been tested.	41	0	0.4	0.0	Fed--Maritime Admin.
DWT 18	Analysis and Testing	Stress Relaxation Characteristics of Elastomeric Isolation Mounts	Maintenance Reduction, Machinery Silencing	Apparatus to monitor stress designed. Isolation mounts received.	100	100	0.5	0.5	Fed--Fed RR Admin.
DWT 19	Analysis and Testing	Energy Conservation Study on Tandem Propellers	Propeller Design, Performance Testing	Experiments made to evaluate tandem design. Report on propulsion tests.	45	--	0.6	--	Fed--Maritime Admin.
DWT 22	Analysis and Testing	Full-Scale Stress Measurements on Control-Pitch Propeller	Propeller Loads and Stresses, Spindle Torque	Full-scale trials conducted in ice and open water. Some findings reported.	603	200	6.0	2.3	Fed--U.S. Coast Guard
DWT 26	Analysis and Testing	Avondale Shipyard Powering Trials, Provide Torsion-Meter and Assist in Installation	Instrumentation of Trial	Report Published. DANSRDC 79/084	4	95	0.1	0.9	Ind--Avondale Shipyards, Inc.
DWT 27	Analysis and Testing	Tanker Berthing Evaluation Trials	Instrumentation of Trial	Trials conducted to gather tug/ship interaction forces; report issued.	--	--	--	--	Fed--Dept. Commerce
DWT 28	Analysis and Testing	Shallow Water Maneuvering Trials	Instrumentation of Trial	Trials run; parameters measured; report published.	20	--	0.2	--	Fed--Maritime Admin.
DWT 29	Analysis and Testing	HMS ADDIRIYAH (MSC-412) Standardization, Tactical, and Fuel Economy Trials	Instrumentation of Trial	Trials concluded and report published.	4	95	0.1	0.9	Fed--NAVSEASYSCOM
DWT 30	Analysis and Testing	KARMAI Bay (MNGB-101) Speed, Tactical, and Maneuvering Trials	Instrumentation of Trial	Tactical, maneuvering, speed-vs-shaft-RPM, and ice-breaking trials conducted.	64	227	0.8	2.7	Fed--U.S. Coast Guard
FITAC 32	Analysis and Testing	GIDEP Operations Center	Computer Data Processing and Analysis, Communications Networking	\$24 million savings (cost avoidance) in CY 1978 plus intangibles.	1700	2000	10.0	11.0	Fed--Joint Logistics Commanders

<u>Performing Technological Area</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Progress</u>	<u>Funding (\$K)</u>	<u>Man-Years</u>	<u>Sponsor</u>	
				<u>FY79</u>	<u>FY80</u>	<u>FY80</u>	
NMC 71	Analysis and Testing	Hydrogen Evolution Rates, Dev. of Hydrogen Getter Testing	Equipment Development	Gathers great commercial potential for use in seal vessels containing batteries.	4	-- 0.1	-- Fed--NAVSEASYSCOM
NSWC 115	Analysis and Testing	Position Lifetime Technique--Measuring Moisture in Composites	Composite Materials Nondestruct. Testing	Feasibility demonstrated for several polyamide resins.	10	10 0.1	0.1 Fed--NASA Langley Research Ctr.
NSWC 120	Analysis and Testing	Underwater Tank Tests Using Unique Facilities	Hydroballistics	Test services provided for Navy and industry.	70	70 1.0	1.0 Fed. and Ind.
NMC 135	Analysis and Testing	Fire/Ballistic Tests of Composites: Fibers Released From Graphite-Epoxy Composites	Aeronautics	Prepared test site and collection tunnel.	35	30 0.3	0.3 Fed--NASA Ames Research Center
NMC 136	Analysis and Testing	Drop Tank Test--Part of Navy Acceptance Testing	Aeronautics	Fuel fire and fuel vapor ignition tests.	33	0 0.1	0.0 Ind--Royal Industries, Inc.
NMC 138	Analysis and Testing	To Quantify Hazards with Large Spills of LNG and LPG, Spill Facility Completed	Atmospheric Physics, Safety and Chemical Engineering	Burning behavior, detonation tests, vapor dispersion, concentration.	141	100 1.0	0.8 Fed--Dept. Trans.
NMC 139	Analysis and Testing	Ammonia Spill Tests; Extent of Hazard	Atmospheric Physics, Safety and Chemical Engineering	Nondispersive spectrophotometer evaluated for determining ammonia concentration. New data acquisition system being specified.	225	417 1.3	1.7 Fed--Dept. Trans.
NMC 140	Analysis and Testing	Spill Tests--LNG and LPG; Design Facility	Atmospheric Physics, Safety and Chemical Engineering	Contractor bidding on 40-cum facility. Vapor concentration studies.	787	378 2.1	2.5 Fed--Dept. Energy
NMC 141	Analysis and Testing	Maverick Booster Testing for Explosive Technology Inc.	Explosives/ Propellants	Test boosters at impact shock levels predicted for warhead.	14	0 0.1	0.0 Ind--Explosive Technology Inc.
NMC 143	Analysis and Testing	Physics of Crystalline Surfaces to Produce Better Thin-Film Devices	Solid-State Physics	Mechanism of formation of epitaxial films and nature of "clean" crystal surfaces. Publications.	15	16 0.2	0.2 Fed--NASA Ames Research Center

Performing Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
				FY79	FY80	FY80		
NWC 144	Analysis and Testing	Optical Evaluation of Typical PIR Spherical Mirror; To Measure Scattering	Optics	Mirror polished, coated, and measured. Continuing.	0	0	0.0	Ind--Hughes Aircraft
NWC 145	Analysis and Testing	Mirror Surface Characterization For Large Optics	Optics	Surface quality evaluation in processing of advanced optical materials.	11	0	0.2	0.0 Ind--General Dynamics Convair
NWC 146	Analysis and Testing	Intrinsic Damage Threshold Study--Study Laser Damage Phenomena	Optics	Goal--Multilayer coatings with increased damage resistance. Significant progress in film production, etc.	130	135	1.0	1.0 Fed--Dept. Energy
NWC 147	Analysis and Testing	Preparation and Characterization of Amorphous Silicon--More Efficient Solar Cells	Optics	Develop techniques useful in manufacture.	59	141	0.6	1.6 Fed--Dept. Energy Solar Energy Research Inst.
NWC 151	Analysis and Testing	Synthesis Studies-- Employ New Oxidant Peroxydisulfuric Acid in Synthesis of New Compounds	Organic Chemistry	1,2,3,5-Tetraniitrobenzene and Pentanitrobenzene synthesized.	70	0	1.0	0.0 Fed--Dept. Energy Lawrence Livermore Lab.
NWC 152	Analysis and Testing	Surveillance; ROCOZ Optical Components-- For Rocket-Borne Ozoneonde ROCOZ	Atmospheric Physics	Spectrophotometric calibrations and requisite calculations of effective ozone absorption coefficients. Aging characteristics of interference filters.	37	50	0.5	0.6 Fed--NASA Goddard Space Flight Ctr.
NWC 153	Analysis and Testing	Develop New Procedure to Synthesize TAB	Organic Chemistry	1,3,5-Triamino-2,4,5-trinitrobenzene.	100	100	1.4	1.4 Fed--Dept. Energy Los Alamos Scien. Lab.
NWC 154	Analysis and Testing	Establish Combustion Instability Characteristics for Space Shuttle Solid Rocket Motor	Propellants	Combustion stability of igniter propellants. Thrust perturbations of booster motor.	37	38	0.3	0.3 Fed--NASA
NWC 156	Analysis and Testing	CADM Submunitions Program To Perforate 8-Inch Triple-Reinforced Concrete	Explosives and Aeronautics	Perforation measurements. Ability of submunition fins to stabilize.	58	0	0.1	0.0 Ind--Aerojet Ordnance and Mfg. Co.

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
NWC 157	Analysis and Testing	Vought Pre-Flight Rocket Track Test--Dispersion of Subpacks, Munitions Released in Pre-Flight	Explosives and Aeronautics	High-speed track test conducted.	111	0	0.1	0.0	Ind--Vought Helicopter Inc.
NWC 158	Analysis and Testing	Pirestone F-18 Fuel Tank Test--Structural Information on Takeoff and Landing	Aeronautics	Good results from 6 data runs.	72	0	0.1	0.0	Ind--Pirestone Coated Fabrics Co. Inc.
NWC 159	Analysis and Testing	Martin-Marietta Submissile Explosives and Dispersion Test; Dynamic Track Test	Aeronautics	Dynamic track test for submissile dispersion and flight characteristics.	60	0	0.2	0.0	Ind--Martin-Marietta Aerospace
NWC 160	Analysis and Testing	Assault Breaker, Verify Aerodynamics of Sub-munitions	Aerodynamics	Cost estimate and test plan prepared.	20	0	0.0	0.0	Ind--Hughes Aircraft
NWC 162	Analysis and Testing	NASA Galileo Probe; Verify Structural Integrity, etc., of Parachutes	Aeronautics	High-speed drop test vehicles being modified. Test instrumentation being designed or procured.	123	0	1.5	0.0	Fed--NASA Ames Research Center
NWC 163	Analysis and Testing	Automatic Deployed Survival Kit	Escape Systems	Will be demonstrated for installation into T-2 aircraft on Japanese Air Self-Defense Force.	13	0	0.0	0.0	Ind--American Safety Flight System
NOSC 177	Analysis and Testing	Calibration and Evaluation Evaluation Services (Work in Support of DOD Contracts)		Services performed on individual basis.	22	24	0.5	0.5	Industry
NOSC 188	Analysis and Testing	Analysis of U.S. Coast Guard Systems, Coastal Surveillance	Operations Research	10-year operational systems plan, catalog of required task capabilities for each platform class, and trade-offs developed.	310	100	3.0	1.0	Fed--U.S. Coast Guard
NOSC 194	Analysis and Testing	USCG Evaluation of SSP (Swath-Type) Kalmalino	Marine Engineering	Sea trials completed.	58	0	0.3	0.0	Fed--U.S. Coast Guard
NOSC 199	Analysis and Testing	Methods for Trace Metals in Seawater by Flameless Atomic Absorption Spectrophotoetry	Inorganic Chemistry	60 seawater samples analyzed for copper and zinc.	10	0	0.2	0.0	NP--API/JHU

Performing Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)				Man-Years	Sponsor
				FY79	FY80	FY79	FY80		
NRL 220 Analysis and Testing	Corrosion Resistance of Steel Piling	Materials Research Energy	Helped on design of foundation piling for nuclear power plant.	2	8	0.0	0.0	Fed--Nuclear Regulatory Comm.	
NRL 206 Analysis and Testing	Alloy Fracture Micro-mechanisms	Microstructural Analysis	Analysis on propeller shaft failure on a commercial tanker (Coast Guard)	164	173	2.1	2.6	Fed--Off. Nav. Res.	
NRL 216 Analysis and Testing	Surface Analysis of Guidance System Components	Surface Analysis Techniques	Effort to identify source of noise in slip ring assemblies. New approaches to organic film identification.	35	60	0.5	0.6	Fed--Strategic Systems Project Office	
NRL 218 Analysis and Testing	Alloy Fracture Micro-mechanics (Bridge Wires)	Failure Analysis, Fracture	Determine why wires on Messana Narrows suspension bridge breaking.	164	173	2.1	2.6	Fed--Off. Nav. Res.	
NRL 219 Analysis and Testing	Alloy Fracture Micro-mechanisms (Helicopter Rotor Spindle)	Failure Analysis	Remedy for Sikorsky H-3 rotor spindle fractures.	164	173	2.1	2.6	Fed--Off. Nav. Res.	
NRL 222 Analysis and Testing	Welding Metallurgy	Materials Research	Led conference on laser welding for Amer. Soc. Metals.	188	197	2.7	2.8	Fed--Off. Nav. Res.	
NRL 224 Analysis and Testing	Laser Processing of Materials, Improved Corrosion Resistance, Strength	Materials Research, Research Methodology	Industry exploring NRL's laser-spray process and laser-welding of plasma-spray coatings.	310	220	3.7	2.6	Fed--Off. Nav. Res./ DARPA	
NRL 229 Analysis and Testing	Computer Program for Spectra Analysis	Materials Analysis	Computer operation speeded up with addition of fast approximation to complementary error function.	15	0	0.2	0.0	Fed--NAVAIRSYS/COM	
OINR 245 Analysis and Testing	Theory of Fault Diagnosis in Linear Systems	Electronic Engineering	Established a measure of testability and an efficient algorithm for solving the fault diagnosis equation.	15	--	0.1	--	Fed--Off. Nav. Res.	
NAEC 260 Analysis and Testing	Wear Debris Analysis	Wear Analysis	Characterization of wear in oil lubricated systems. Standardization of ferrographs.	--	--	--	--	Foreign--Great Britain	
NAEC 261 Analysis and Testing	Infrared Thermography as Inspection Technique	Nondestructive Testing	Quantification of flow type size, and depth detectable in composites.	46	47	1.5	1.5	Fed--NAVAIRSYS/COM	

Performing Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years		Sponsor
				FY79	FY80	FY79	FY80	FY80	
NAVAIR 42	Microstrip Dipole Antennas For Tactical Missile Use	Electronics	Potential application to TV, radio, direction finding, aircraft altimeter, etc.	--	--	--	--	--	Fed--NAVAIR/SCOM
NOC 81	Foreign Officer Training Program in Hydrographic Surveying/Coastal Oceanography	Marine Technology Hydrography	In FY 79, 19 officers from 6 countries trained.	--	--	4.0	4.0	4.0	Fed--CNO Security Assistance Training Program
NTBC 123	Extremely Wide Angle Visual Displays	Visual Systems, Visual Simulation	Could have impact on visual systems throughout aviation community	200	--	4.0	--	--	Fed--NAVATCOM
NUC 132	Improve Information Retrieval Capabilities, New Methods of Communication	Computer Technology	Training on Electronic Information Exchange System (BIES) as nucleus of a national innovation network.	--	--	--	--	--	NP--R.I. League of Cities and Towns, New England Innovation Group, Fed Lab Consortium
NOSC 167	Submarine Signal Fuze for launching markers underwater.	Instrumentation	Uses seawater battery, activated in 6-8 ft water.	--	--	--	--	--	Fed--NAVEAST/SCOM
NOSC 176	Polar Communication Prediction System	Electromagnetic Environment Prediction	System using solar/conospheric disturbance techniques demonstrated to PAA.	50	0	0.5	0.0	0.0	Fed--Dept. Trans., FAA
NRL 207	Electronic Components for Expendable ECM	Electronic Countermeasures	Characterization of expendable TWTs. Cathode structures elevated. Spectrometer membrane design.	440	900	1.3	1.3	1.3	Fed--NAVELCS/SCOM
NRL 210	Acousto-Optics Technology Advancement	Optic Imager/ Detector	Acousto-optic techniques for DOA and TOA. Increase in imager dynamic range, investigate crystals.	762	700	2.7	3.3	3.3	Fed--NAVELCS/SCOM
NRL 225	Sonar Ceramic Stability	Materials Research Sound Transducers	New composite concept to improve sonar sensors. Important operation/logistic advantages.	35	45	0.4	0.4	0.4	Fed--Off. Nav. Res.
NRL 230	Gyrotrot Traveling Wave Amplifier	Electronics Development	Design for gyrotrot travelling wave amplifier operating at second cyclotron harmonic complete.	0	0	0.0	0.0	0.0	Fed--Rome Air Development Ctr.

Performing Technological Activity Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
				FY79	FY80	FY79	FY80	
NRL 231 Communications	High-Power Millimeter-Wave Amplifier	Electronics Development	Computer program for calculating optimum operating parameters for gyrotron travelling wave amplifier.	0	0	0.0	0.0	Fed--Rome Air Development Ctr.
NRL 232 Communications	Millimeter-Wave Power Tube Electronics Development		Exchange info on gyrotron. Raytheon to evaluate NRL beam collectors and tube processing.	0	0	0.0	0.0	Fed--Nav. Res. Lab.
NRL 233 Communications	Low-Bit-Rate Digital Speech	Signal Processing	Large-scale integration of speech processors. Psychoacoustic interactions.	400	400	5.0	5.0	Fed--NAVELOSYS/COM
NRL 234 Communications	Microwave Scattering Patterns	Electronics Radar, Communications	Obtain model of electromagnetic scattering patterns from the ocean. Radar target classification in ocean environments.	84	90	1.6	1.4	Fed--Off. Nav. Res.
NRL 237 Communications	Sonar Transducer Reliability Improvement Program (STRIP)	Materials Research, Sonars, Transducers	Annual review attended by industry, workshops, publications.	495	495	10.0	9.5	Fed--NAVSARASYS/COM
ONR 244 Communications	Conducting Polymers Based on Polyacetylene or (CH) _x	Polymer Chemistry Synthesis of Conducting Polymers	Rapid transfer to industry. Promise of economical plastic solar cells--a new option in solving energy crises.	120	120	2.0	2.0	Fed--Off. Nav. Res.
ONR 247 Communications	Ohmic Contacts in Gallium Arsenide	Electronic Engineering Electromagnetics	Published how to improve metallic-ohmic contacts to gallium arsenide devices.	0	0	0.0	0.0	Fed--Off. Nav. Res.
ONR 248 Communications	Gold-Germanium Refractory Contacts	Electronic Engineering	Provided how to improve production yield and performance of gallium arsenide microwave devices.	20	0	0.2	0.0	Fed--Off. Nav. Res.

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
					FY79	FY80	FY80		
DWT 08	Computer Technology	Computer-Aided Ship Design and Construction	Computer-Aided Ship Design	Development and dissemination of computer programs; available for Navy work.	400	700	2.0	4.0	Fed--NAVEASYS/COM
NALC 36	Computer Technology	Predictive Codes for Engine Materials and Costs	Engine Cost Analysis	Modification of computer codes continuing.	0	0	0	0.0	Fed--NASA Lewis Research Center
NORDA 75	Computer Technology	Optical Character Recognition, Improve Capability to Process Data	OCR--Computer Hardware/Software	Cognitive handprinted input trained recursively analyzer (CHIRRA) method of recognizing handwritten characters developed.	283	237	1.0	1.0	Fed--Defense Mapping Agency
NO/C 87	Computer Technology	Automated Techniques for Detecting Ocean Thermal Fronts	Imagery Pattern Recognition	Papers released.	32	32	1.0	1.0	Fed--NAVOF
NSWC 111	Computer Technology	Cross-Tie Memory, High-Density, Nonvolatile	Thin-Film Memory	Transferred to industry, which is further developing.	300	220	3.2	3.3	Fed--NAVEASYS/COM
NTTC 122	Computer Technology	Application of Voice Technology in Automated Systems	Voice Technology	Speech technology to replace keyboard data for flight plan amendments.	225	225	4.5	4.5	Fed--NAVMAT/COM
NOSC 187	Computer Technology	Impact of a Formal Computer-Based Information System on Informal Info Networks	Information Transfer, Man-Machine Relations	Groups of people, and computer-based systems, selected. Analyses under way.	70	0	0.6	0.0	Fed--Natl. Science Foundation
NOSC 189	Computer Technology	Small Boat Simulator, Training Operations	Display Devices and Equipment	Trailer delivered, consoles installed. Radar simulator, flying spot scanner, software nearly complete.	352	111	3.9	1.0	Fed--U.S. Coast Guard
NOSC 196	Computer Technology	Image Acquisition and Processing (for Automated Mail Handling)	Optics, Computer Science	Image capture and analysis system operating. Full-page images at 10 pages/sec acquired.	832	500	7.8	4.0	Fed--U.S. Postal Service
NRL 208	Computer Technology	Computer/Processors for EW/ESM	Technological Improvements	Determining redundancy allowable in EW analysis and evaluation.	94	110	0.5	0.6	Fed--NAVAIRSYS/COM
NRL 209	Computer Technology	Automatic Radar Pattern Recognition	Data Base Management	Enhancement of signal-processing operations in ESM systems.	340	1000	1.5	3.0	Fed--NAVAIRSYS/COM

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
					FY79	FY80	FY80		
ONR 246	Computer Technology	Nonlinear Controllability	Theoretical Math	Complete solution to the controllability problem for a large class of nonlinear systems.	24	15	0.2	0.2	Fed--Off. Nav. Res.
ONR 249	Computer Technology	Data Base Machine Engineering	New computer organization customized to perform data storage and retrieval. Order-of-magnitude increase in speed, more easily programmed.	60	60	1.1	1.1	Fed--Off. Nav. Res.	
ONR 250	Computer Technology	Personalized Graphics Systems for Automated Maintenance	Human Factors Engineering	Computer-edited made-to-order movie to give expert consultation on repair problems. Reflects viewer's knowledge.	120	170	2.0	3.0	Fed--Off. Nav. Res.
NPS 259	Computer Technology	City Computerized Management Information System	Computer Applications	Computerized Management information system for city of Santa Fe. Recommended new equipment and software.	--	--	--	--	State--Santa Fe, NM

Performing Technological Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
CEL 01	Energy	Organic Rankine Bottoming System for Diesels to Decrease Fuel Consumption	Air Conditioning, Heating, Lighting and Ventilation	No adverse effect on environment found; Navy-DOE agreement made.	616	120	0.9	1.0	Fed--Dept. Energy and Navy
DWT 20	Energy	MARAD Tandem Propeller Follow-On Program	Hydrodynamics, Tandem Propellers	Design requirements for test propellers being checked.	35	104	0.3	0.7	Fed--Maritime Admin.
NCSC 47	Energy	Ocean Thermal Energy Conversion (OTEC) Heat Exchanger Cleaning	Heat Exchanger Technology	Testing and evaluation of in-situ biofouling countermeasures in potential materials continue.	300	152	4.0	2.5	Fed--Dept. Energy
NORDA 73	Energy	OTEC Flexible Cold Water Pipe	Hi-Strength Fabrics	Evaluation of candidate designs for OTEC modular experimental platform.	300	75	2.0	1.0	Fed--Dept. Energy
NOC 84	Energy	Magneti: Survey--Indonesia Straits; To Map Resources	Airborne Magnetic Survey Capability	Data on Sunda Strait and Makassar Strait gathered, processed, and delivered.	--	--	--	--	Foreign-Int'l. national Govt.
NOC 88	Energy	OTEC Biofouling Experiment in the Gulf of Mexico; to determine harmful effect of marine organisms	Marine Biology	Prediction of macro-fouling organisms and effects over 30-yr. power plant life.	10	5	0.3	0.2	Fed--Dept. Commerce National Data Buoy Office
NSWC 112	Energy	NITINOL Heat Engines--Convert Low-Grade Thermal Energy to Useful Mech. or Elec. Energy	Thermodynamics	Prototype engines being evaluated. Specialized NITINOLs commercially available.	75	0	1.0	0.0	Fed--Dept. Energy
NSWC 119	Energy	HNS Explosive Evaluation Hexanitrostilbene	Explosives Synthesis	Evaluating process to synthesize; analytical procedures for assay of purity.	52	65	0.7	0.5	Fed--NASA Lyndon B. Johnson Space Center
NUSC 125	Energy	Technical Energy Specialist (TPE)--Scientific Consultant for Energy Extension Service	Heating, Engineering	Technical energy briefs in response to specific needs.	--	--	--	--	NP--NUSC/Univ. Conn.
NUSC 129	Energy	Energy Conservation in Public Buildings More Efficient Lighting, Heating, Education--All U.S.	Lighting, Heating, Audiovisual Lab.	Prepared Lighting Efficiency Program, Thermal Efficiency Program underway.	--	--	--	--	Federal

Performing Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years		Sponsor
				FY79	FY80	FY79	FY80		
NMC 133 Energy	Conversion of Solid Waste to Polymer Gasoline	Chemical Engineering	Pyrolysis gas purification subsystems greatly improved; some gasoline produced from organics derived from trash.	46	0	0.4	0.0	Fed--EPA, Environmental Research Center	
NMC 134 Energy	COSO Geothermal--Support Joint USN-DOE Drilling Program, Geothermal Reservoir Parameters	Geology and Mineralogy	Testing under way to determine parameters, were productivity.	27	0	0.1	0.0	Fed--Dept. Energy Nevada Oper. Off.	
NMC 137 Energy	Research into Pyrolysis of Pure Cellulose and Pure Lignin Powder; Toward Making Petrochem.	Chemical Engineering	Use China Lake entrained flow pyrolysis reactor	25	0	0.2	0.0	Fed--Dept. Energy Solar Energy Research Institute	
NPRDC 169 Energy	Energy Link; Catalog of Assistance Sources in Fed Consortium	Data Gathering and Analysis	Energy Link Catalog based on needs of cities and counties. Being edited for printing.	--	30	--	1.0	Fed--Fed. Lab. Consortium	
NRL 205 Energy	National Cladding/Duct Materials Development	Microstructural Analysis, Fracture Behavior	Fracture testing of irradiated steel alloys. Phase stability under irradiation determined.	60	75	0.7	0.8	Fed--Dept. Energy	
NRL 211 Energy	Monitoring of Nuclear Airborne Materials	Nuclear Chemistry	Very-high-sensitivity carbon-14 detector. Monitoring or release levels associated with fuel processing.	210	270	1.0	1.0	Fed--Dept. Energy	
NRL 226 Energy	Fusion Materials Task Groups	Materials Research	Review of DOE Fusion Materials Program. Analysis of ferritic steels for fusion reactors. Stability of irradiated titaniums.	100	200	1.0	1.5	Fed--Dept. Energy	
NRL 228 Energy	International Group on Cyclic Crack Growth Rate	Materials Analysis Fatigue Crack Growth Technology	Study of effects of reactor operating conditions. Committee organized, research results distributed.	250	250	3.5	3.0	Fed--Nuclear Regulatory Commission	
NRL 227 Energy	Task Force on Crack Propagation Technology	Materials Research, Crack Propagation	Develop rules for implementation of crack growth methodology into ASME Boiler & Pressure Vessel Code. Begin with 316 S.S.	0	0	0.0	0.0	NP-Metal Properties Council	

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY79	Sponsor
					FY79	FY80	FY80		
NRL 212	Energy	Laser Chemistry. Effects of Laser Excitation on Catalytic Reactions	Materials Research, Chemical Kinetics	Prototype system, decomposition of formic acid on platinum, produces CO and CO ₂ ; studied under laser radiation.	150	150	2.0	2.0	Fed--Off. Nav. Res.
NRL 214	Energy	Hot Corrosion Prevention in Gas Turbines	Materials Research	Low-temp. not corrosion results from reaction of SO ₃ in engine gas with oxides on blade surface. Chromium effective against this.	365	310	3.9	3.7	Fed--NAVSEASYSCOM
NRL 215	Energy	Chelant Boiler Treatment, EDTA	Materials Research	Investigating source of copper in chelant-treated boilers. On-site analytical procedure being developed.	--	--	--	--	Fed--NAVSEASYSCOM
NRL 223	Energy	Fabrication of New Superconductors	Materials Research	Contract awarded to demonstrate industrial production of multifilamentary V ₃ Ga wires.	155	150	2.0	2.0	Fed--NAVAIRSYSCOM
ONR 242	Energy	Fuel-Water Emulsification	Chemical Engineering	Application of fuel-water emulsions to diesel engines and boilers. Reduced fuel consumption and improved performance.	55	--	1.0	--	Fed--Off. Nav. Res.
ONR 243	Energy	Rechargeable Lithium Batteries	Basic Research	Battery based on organic electrolyte containing cyclic ethers. Evaluation for Navy, commercial use.	70	200	1.5	5.0	Fed--Off. Nav. Res.

Performing Technologi- cal Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)		Man-Years		Sponsor
				FY79	FY80	FY79	FY80	
DWT 09	Environment Carbon Fiber Protection	Composite Materials	Methods to minimize entry of fibers into critical systems developed. Conformal coatings being evaluated.	490	400	5.0	4.0	Fed--Rome Air Dev. Cen.
DWT 10	Environment USCG Marine Sanitation Devices Evaluation	Ship Systems, Maintenance Logistics	Current capabilities and new technology being identified.	32	0	0.4	0.0	Fed--U.S. Coast Guard
DWT 11	Environment Recovery Device: Oil/Water Separator (ONS)	Shipboard OWS Systems	Constraint matrix for evaluation complete.	81	65	1.5	0.8	Fed--U.S. Coast Guard
DWT 12	Environment USCG Oil/Water Separator Detergent	Chemistry, Detergent Experience	Emulsion stability tests performed. Outline for engine room cleaning developed.	80	75	0.5	0.7	Fed--U.S. Coast Guard
DWT 23	Environment NOAA Current Sensor Experiments for Cable-Body Systems	Hydrodynamics, Environmental Measurements	Current meters calibrated under at-sea conditions.	66	50	0.5	0.4	Fed--Nat'l. Oceanic and Atmospheric Admin.
NBIOI 44	Environment Effect of Energy Conservation on Air Hygiene	Bacteriology, Expertise in collecting bacteria	Semiautomatic samplers for counting airborne bacteria used to evaluate ventilation.	130	0	2.5	0.0	Fed--Dept. Energy
NBIOI 46	Environment Development of an Oil Identification Kit	Chemistry, Thin-Layer Chromatography	Finger printing on board ship help to identify source of oil slick.	13	0	0.2	0.0	Fed--Off. Nav. Res.
NCSC 49	Environment Offshore Pollutant Effects Program; Test Facility	Test and Evaluation; Unique Facility	New seawater pumping system being designed EPA performs tests.	\$5	150	0.5	1.0	Fed--EPA, Environmental Research Lab
NOC 52	Environment Experimental Ocean Frontal Analysis Chart	Oceanographic Analysis	Sea-surface temperatures in Western North Atlantic provided weekly.	22	22	1.0	1.0	Fed--NAVOC
NWC 148	Environment Silver Iodide Pyrotechnic Flares--Interaction of Nucleants With the Atmosphere	Inorganic Chemistry	Accumulation of Pyrotechnic formulations can be reworked into use in operational programs.	0	0	0.0	0.0	State--Santa Barbara County

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY79	Sponsor
					FY79	FY80	FY79		
NWC 149	Environment	Inadvertent Weather Modification from Shuttle Launches	Atmospheric Physics	Characterize aluminum oxide aerosols. Stabilized ground clouds from Kennedy Space Center measured.	55	0	0.2	0.0	Fed--NASA
NWC 150	Environment	Western Kansas Ground Water Study--Provide Consulting Services	Atmospheric Physics	Advise on Pyrotechnic capability.	18	0	0.2	0.0	State--Western Kansas Ground Water Dist. #1
NWC 161	Environment	Technical Support in Installation of Airborne Research Data System and Other Research Systems	Atmospheric Physics	Provided support to APL as requested.	15	0	0.0	0.0	NP--Johns Hopkins Univ.
NMSC 166	Environment	Method for Disposing of Red Phosphorus Composition from Markers, Signals	Chemical Engineering	Incineration complex combined in the breakdown machines to make Pilot plant. Operation proved technical soundness and feasibility environment acceptability.	--	--	--	--	Fed--NAVSEASYSCOM
NOSC 182	Environment	Environmental Response and Effects (Following Accidental Marine Deposition of Radioactive Material)	Radiation Shielding	Samples being analyzed.	50	50	0.3	0.3	Fed--Dept. Energy Safety/Isootope-Fuel Branch
NOSC 190	Environment	Merchant Marine Occupational Noise	Acoustics, Human Factors	Background info on noise on U.S. merchant ships. Noise standards recommended.	56	120	0.8	1.3	Fed--U.S. Coast Guard
ONR 241	Environment	Shipboard Solid and Liquid Chemical Waste Storage and Transfer Engineering, Pollution Abatement		Elimination of waste discharge from Navy vessels. Holding tank systems for all craft.	55	--	1.0	--	Fed--Off. Nav. Res.
ONR 253	Environment	3-D Water Flowmeter	Electrical Engineering	Acoustic current meter upgraded performance of new sewage treatment plant.	0	0	0.0	0.0	Fed--Off. Nav. Res.

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years		Sponsor
					FY79	FY80	FY80	FY79	FY80	
NABC 262	Environment	Jet Engine Noise Suppression	Testing jet engines	Development of exhaust noise suppressor configuration for test cells for out-of-airframe engines. Aircraft acoustic enclosures.	--	--	--	--	--	Fed--NAVATCOM

<u>Performing Activity</u>	<u>Technological Area</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Progress</u>	<u>Funding (\$K)</u>	<u>Man-Years</u>	<u>Sponsor</u>	
					<u>FY79</u>	<u>FY80</u>	<u>FY79</u>	<u>FY80</u>
DWT 13	Fire and Safety	Inspection Testing-- Lifesaving Equipment	Inspection and Testing	Tests of individual items of lifesaving equipment (life jackets, life rafts, etc.).	60	67	0.8	0.8
DWT 16	Fire and Safety	Fire Resistance Tests (Hydraulic Fluids for Shipboard)	Inspection	Has only facility (modified compression fire-resistant engine) to test shipboard hydraulic fluids for Navy.	10	27	0.1	0.2
NAVAIR 41	Fire and Safety	Swimmer Protective Helmet	Human Factors	May be utilized in underwater construction, rescue, salvage operations.	--	--	--	--
NATC 43	Fire and Safety	Head-Up Display to Simulate Aircraft	---	See NAVAIRSYSCOM	--	--	--	--
NSWC 117	Fire and Safety	Reactor Safety Studies, Hydrodynamic Loads from Accidents	Safety Engineering Hydrodynamic and Structural Comput.	Services provided as NRC requests, e.g., Three Mile Island, Clinch River	16	5	0.3	0.1
NOSC 185	Fire and Safety	Kerosene Jet Breakup Study (Fire Suppression Following Crashes)	Fuels, Drag Reduction Additives	8 additives tested. General correlation of spray inhibition with drag reduction measurements shown.	15	0	0.2	0.0
NRL 217	Fire and Safety	Workshop--Control of Shipboard Damage	Damage Control	Seek participation of industry in formulating R&D program plan for fire protection and damage control on ships.	--	--	--	--
ONR 252	Fire and Safety	Fire Drill for Water from Ice	Electrical Engineering	Electrically, powered thermal drill for penetrating Arctic ice effective for winter firefighting.	100	100	1.0	1.0
NFS 257	Fire and Safety	Nondisintegrable Burn Tower, CRP Project, IPA assignment	Construction Engineering	Tower to stand up with repeated use constructed of porous concrete blocks reinforced with steel rod.	--	--	--	--

<u>Performing Technological Activity</u>	<u>Technological Area</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Progress</u>	<u>Funding (\$K)</u>	<u>Man-Years</u>	<u>Sponsor</u>	
					FY79	FY80	FY79	FY80
NAVAIR 39	General Assistance	Water Displacing Corrosion Prevention Compound	Materials Research and Development	New material for superior to prior corrosion-control compounds. Numerous potential applications.	35	35	1.0	1.0
NAVSEA 103	General Assistance	Mid-Atlantic Region Technology and Business Opportunities Conference 20 Sep 79	Weaponry	Provided small business with potential opportunities for NAVSEA procurement participation.	--	--	--	Ind--Various
NWC 142	General Assistance	Operation of the Federal Laboratory Consortium for Technology Transfer	Technology Transfer	Spring meeting held, Fall meeting planned. Workshops, seminars, newsletter.	182	220	0.5	0.5 Fed--National Science Founda.
NWC 164	General Assistance	Federal Laboratory Consortium for Technology Transfer--Santa Fe, Oct 78 and NBS May 79	Technology Transfer	Semiannual meetings, executive committee meetings.	0	0	0.0	0.0 Fed--Independent Research and Development/Technology Utilization (IRD/TU) Office
NWC 165	General Assistance	Technology Transfer Exhibit Energy Fair, State and Local Government	Technology Transfer	Fairs in LA, Hartford, supply state and local with info on NWC.	0	0	0.0	0.0 Fed--IRD/TU Office
USRA 172	General Assistance	Enrichment Program for Gifted School Children--Extend Education	Math., Physical Science, Comp. Sci.	7 minicourses were taught. FY 80 will concentrate on math and computer science.	20	21	0.3	0.3 State--Anne Arundel County Schools
NRL 235	General Assistance	Circuit-Riding Technology Agent in Community Technology Initiatives Program (CTIP) (Rockville)	General Assistance	Service in local governments contributions in sewage disposal, water quality, air pollution, fire suppression, etc.	40	40	1.0	1.0 NP--National Science Founda. (CTIP)
NRL 201	General Assistance	Electronic Materials Technology	Metallography	Method developed to grow high-purity semi-insulating gallium arsenide single crystals, industry evaluating, using.	--	--	--	Fed--NAVATCOM
NRL 203	General Assistance	Ultrapurification of Gaseous Hydrogen Fluoride	Chemical Engineering	Perfected method for removal of water and most carbonaceous contamination. Shared with industry.	0	0	0.0	0.0 Fed--Nav. Res. Lab. and Perkin Elmer

Performing Technology Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)		Man-Year's		Sponsor
					FY'79	FY'80	FY'79	FY'80	
NPS 254	General Assistance	Utilization of RDT&E Investment at CEL	Research Utilization	Improve utilization of product from CEL. Evaluate current system. Effective technology transfer.	28	0	0.3	--	Fed--NAVPAC
NPS 255	General Assistance	Technology Transfer Symposium on Research Utilization	Research Utilization	Technology transfer effort for the future should be one towards a pull for new technology.	5	0	0.1	--	Fed--(NAVMATCOM, NAVPAC, NPS)
NPS 256	General Assistance	Conference for the Forest Service	Research Utilization	To establish a national policy for utilization of Forest Service research results.	--	--	--	--	Fed--U.S. Forest Service

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)		Man-Years FY79	Sponsor
					FY79	FY80		
CEL 02	Health and Medicine	Brain Model for Study of Response/Injury Relationship	Bioengineering, Solid Mechanics	Small primates being studied; injuries computer program written.	1.38	83	1.2	Fed--Dept. Trans.
NADC 37	Health and Medicine	Efficacy of Symptomatic G-Suit Inflation	Stress Physiology	Human performance measured during centrifuge runs	26	0	2.4	0.0 Fed--NASA Lyndon B. Johnson Space Center
NBIOL 45	Health and Medicine	Study of Antiherpesvirus Material from Algae	Virology Tissue Culture Expertise	Polysaccharide active in vitro: a protein with in vivo activity.	30	30	0.8	Fed--Sea Grant College Program
NHRC 50	Health and Medicine	Program for Medical Care of POWs from All Wars	Analysis, Medical Exams, Effects of Captivity	Continued consultation with VA, 5-year follow-up on Vietnam POWs; data collected.	1	1	0.1	Fed--Veterans Admin.
NHRC 52	Health and Medicine	Conference on Navy Occupational Health	Behavior Science, Organizational Dev. Theory	Conference proceedings circulated	25	0	0.3	0.0 Fed--Off. Nav. Res. and NMRA&D Comm.
NHRC 53	Health and Medicine	Research Findings in Areas of Stress-Related Illnesses	Relationship between Stress and Illness	World literature on effects of life changes, development of illness--a major research endeavor.	3	3	0.2	0.2 Fed--Various
NHRC 54	Health and Medicine	Stress-Related Disability Retirements	Epidemiological Research	Publicity continues and more data forthcoming.	1	1	0.1	NP--Local Government Assistance Task Force (PLC-Far West Region)
NHRC 55	Health and Medicine	Understanding Sleep Disorders--Education of Professionals	Sleep and Sleep Disorders	Education continuing work shops.	0	0	0.1	State--Univ. Calif. BiMed and Surgery
NHRC 56	Health and Medicine	Education of Public in Sleep, Dreams, and Brain-wave Activity	Laboratory Research	College settings, media.	0	0	0.1	Fed--Various
NHRC 57	Health and Medicine	Education of Physicians on Sleep, Sleep Disorders and Pills	Sleep Disorders, Effect on Performance	Consultation to physicians.	0	0	0.1	Fed--Various
NHRC 58	Health and Medicine	Health and Safety of Shift Workers--International Meeting Sep 79	Work-Sleep Schedules	Proceedings being compiled, yearly meeting proposed.	40	0	0.1	Ind--Upjohn International and Navy
NHRC 59	Health and Medicine	Effects of Stress or Simulated Combat on Unit Readiness/Effectiveness	Sleep Deprivation	Background on research supplied.	0	0	0.0	Fed--U.S. Army Inst. for the Behavioral and Social Sciences

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
NRRC 60	Health and Medicine	POWs--Medical Followup	Medical and Family Research on POWs	Prolonged Stress Branch continues medical followup.	0	0	0.0	0.0	NP--Various POW Organizations
NRRC 61	Health and Medicine	Overview of Current Family Research Efforts in Navy Populations	Health of the Military Family	Overview of findings and methodologies of family research provided.	1	0	0.0	0.0	Fed--Various
NMRD 62	Health and Medicine	Design and Test of an Integrated Modular Clinical Laboratory for Shipboard Use	Bioengineering, Medical Equipment	Extensive clinical laboratory testing.	58	--	0.9	--	Fed--NM R&D Comm.
NMRD 63	Health and Medicine	Study of Louse Infestation in Ethiopia	Entomology, Epidemiology	Physical, behavioral, cultural, physiological factors included in publication.	3	--	0.5	--	Fed--NM R&D Comm.
NMRD 64	Health and Medicine	Recompression Treatment Tables Used Throughout the World by Government and Industry	Hyperbaric Physiology	World-wide recompression diving Procedures available (DTIC AD A056666).	39	--	0.7	--	Fed--NM R&D Comm. and NAVSEASYS.COM
NMRD 65	Health and Medicine	Portable Field Kit for Rapid Disease Diagnosis	Microbiology Medical Instrumentation	Kit undergoing extensive testing and evaluation.	53	76	0.8	0.9	Fed--NM R&D Comm.
NMRD 66	Health and Medicine	Navy Amphibious Medical Evacuation Simulation (NAME'S II) Computer Model	Clinical Medicine, Operations Research	NAME'S II expanded from combat zone to CONUS, Applicable to medical emergencies.	75	75	0.6	0.6	Fed--NM R&D Comm.
NMRD 67	Health and Medicine	Remote Medical Diagnosis System (RMDS) with Slow-Scan TV	Biomedical Engineering, Communications	RMDS for ships and diagnostic centers being Spec'd. Video via Satellite.	200	800	1.8	2.3	Fed--NM R&D Comm.
NMRD 68	Health and Medicine	Management of War Injuries to the Jaws and Related Structures Textbook	Clinical Medicine	Publication includes data since 1968, GPO Stock No. 008-045-00018-6.	--	--	--	--	Fed--NM R&D Comm.
NMRD 69	Health and Medicine	Portable Life Support Stretcher Self-Contained Unit	Biomedical Engineering, Medical Equipment	5 units fabricated and under evaluation.	50	40	0.7	0.3	Fed--NM R&D Comm.
NMRD 70	Health and Medicine	Medical Backpack--Transport Life Support to Shipboard Casualty	Medical and Hospital Equipment, Biomedical Engineering	3-month evaluation by ships and research and rescue yielded favorable recommendation.	8	80	0.2	0.4	Fed--NM R&D Comm.

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
NMC 155	Health and Medicine	Automatic Tissue Culture Colony Counter	Optics	Improved second version of cell colony monitor. Consists of optics, mechanical reticle and sample drive, electronics.	14	0	0.2	0.0	Fed--HEW
NSC 193	Health and Medicine	Crew Performance Assessment (Effect of Ship Motion)	Information Theory, Psychology	3 studies under way. 3 classes of ships under operating conditions.	86	0	1.1	0.0	Fed--U.S. Coast Guard
NSC 197	Health and Medicine	Human Factors Technology Transfer--Mobility for Paraplegics	Bioengineering Prosthetics	Wheelchair ambulator completed. Wheelchair to integrate fabricated. Whole system being tested.	106	14	1.2	0.1	Fed--Veterans Admin.
NRL 236	Health and Medicine	Ultrasonic Pressure/Intensity Levels Acceptable for Human Tissue	Acoustic Impulse Technology	Acoustic impulse from thick PZT plates has been narrowed to give an effective bandwidth of about 1.5 MHz.	30	10	0.3	0.1	Fed--Food and Drug Admin., Bureau of Radiological Health
NPS 258	Health and Medicine	Change in Asphalt Composition	Chemical Engineering, Environmental Health	New technology to eliminate use of carcinogens in asphalt.	--	--	--	--	State--Carson City, NV

Performing Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
				FY79	FY80	FY79		
NADC 35	Instrumentation-Retrodirective Array Development/Evaluation for All-Weather Identification	Radar Systems, Sensor Development	Radar delivered array evaluated, report submitted	350	0	2.0	0.0	Fed-Dept. Trans., U.S. Coast Guard
NAVAIR 38	Instrumentation-Portable Hydrogen Measuring System	Materials Research and Development	Uses barnacle electrode measuring system. Potential wherever there is high-strength steel.	30	30	1.0	1.0	Fed-NAVAIR/WS/COM
NCSC 48	Instrumentation-Determine Beach Traversability in an Amphibious Operational Area	Electro-Optic Hydrographic Mapping	Aircraft-mounted sensor technique workable in bad weather.	197	240	1.0	1.2	Fed-NAVAIR/WS/COM
NORDA 72	Instrumentation-Expendable Current Profiler, Instrumentation for Measurement of Horizontal Currents	XBT Technology Geomagnetic Electro-Kineto-graph	Instrument in production, sampling techniques demonstrated. NAVOCEANO to include in surveys.	180	100	1.5	1.5	Fed-NORDA
NORDA 74	Instrumentation-Thermistor Array Development, Moored, Long-Term At-Sea Operation	Kevlar Cable, Semiconductor Sensors	Design complete, array fabricated.	70	--	0.7	--	Fed-NOAA Data Buoy Office
NORDA 76	Instrumentation-Remote Ocean Subsurface Temperature Profiler	Laser, Remote Sensing	Optical and electronic, components fabricated, testing begun.	12	21	0.2	0.3	Fed--Nav. Res. Lab.
NORDA 77	Instrumentation-Towed Ocean Density System, Towed Sensor Array	Kevlar Cable, Semiconductor Sensors	Design complete, fabrication begun.	185	170	2.5	2.7	Fed-NORDA
NORDA 79	Instrumentation-Easily Deployable Sub-surface-Tethered Vehicle That Can Sample the Water Column	Variable Buoyancy, Satellite Transmission	Construction complete, preliminary tests made.	250	--	2.0	--	Fed-NORDA
NORDA 80	Instrumentation-Versatile Experimental Kevlar Array--for Deployment in Ocean	Navy Cable Development Technology	Development of versatile experimental KEVLAR array (VERA) program.	308	520	5.0	3.7	Fed-NORDA
NOC 82	Instrumentation-Indonesian/US Hydrographic Survey Operations	Coastal Hydrographic Surveys	2 large areas now being surveyed. Aid to Indonesian economy.	--	--	--	--	Fed--Def. Mapping Agency, NAVOC
NOC 83	Instrumentation-Joint US/Republic of Korea Survey Operations Coasts and Harbors	Coastal Hydrographic Surveys	75% of both ROK coastlines complete. Surveys continue.	--	--	--	--	Fed--Def. Mapping Agency, NAVOC
NOC 85	Instrumentation-Hydrographic Survey Assistance Programs for Other Governments	Coastal Hydrographic Surveys	1.3K mile completed in Panama OPS.	--	--	--	--	Fed--Def. Mapping Agency, NAVOC

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY81		
NOC 89	Instrumentation	Instrument Test Services	Pressure Chamber Design	Testing biological tracking enclosures. Repair underwater measurement system.	2	3	--	--	Fed--NOAA, Dept. Commerce
NOC 90	Instrumentation	Instrumentation--Transducer Performance Study of Bubble Sweepdown	Hydrographic Coastal Survey, Ocean Engineering	Extending transducer below bottom of launch improved data collection.	48	--	0	0.0	Fed--Def. Mapping Agency
NOC 95	Instrumentation	Instrumentation Calibration Services for Meteorological Systems	Precision Measurement	Meteorological wind and direction sensors calibrated.	1	2	0.0	0.0	Ind--Production Control Systems Inc.
NOC 96	Instrumentation	Calibration for Secondary Transfer Standards for Pressure Measurements	Precision Measurement	Quick reaction for dead-weight testers.	1	1	0.0	0.0	Ind--Avondale Shipyard, New Orleans
NOC 97	Instrumentation	Repair and Calibration of Services of General-Purpose Test Equipment	Standards Laboratory	Repaired and calibrated oscilloscopes, signal generators, etc.	0	0	0.0	0.0	Ind--Bay Technical Associates Inc.
NOC 98	Instrumentation	Repair and Calibration of Instruments to Monitor Nuclear Reactor Parameters	Standards Laboratory	100 items of general-purpose electronic test equipment processed. Ongoing	5	10	0.0	0.0	Ind--Louisiana Power and Light
NOC 99	Instrumentation	Repair and Calibration of Instruments to Monitor Nuclear Reactor Parameters	Standards Laboratory	110 items processed. NRC requirements must be met.	2	10	0.0	0.0	Ind--Mississippi Power and Light
NOC 100	Instrumentation	Test and Calibration Services Mechanical Standards	Precision Measurement	Mechanical standards refurbished.	1	3	0.0	0.0	Ind--M-R-S Mfg. Co.
NOC 101	Instrumentation	Repair and Calibration of Meteorological Sensors	Precision Measurement	113 sensors calibrated. Used to monitor air quality in all major cities.	8	10	0.0	0.0	Ind--NUS Corp.
NOC 102	Instrumentation	Calibration Services on Deep-Sea Reversing Thermometers	Precision Measurement	Deep-sea reversing thermometers calibrated.	0	1	0.0	0.0	State--So. Carolina Wildlife and Marine Resources Dept.
NEWSIES 108	Instrumentation	Two-Wire Telephone Data System Remote Control	Microprocessor Technology	Building RF assembly for antenna assembly on top a ship's mast.	1	5	0.2	0.2	Fed--NAVSEASYS/COM

<u>Performing Activity</u>	<u>Technological Area</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Funding (\$K)</u>			<u>Man-Years</u>	<u>Sponsor</u>
				<u>FY79</u>	<u>FY80</u>	<u>FY80</u>		
NSSES 109	Instrumentation	Improved Low-Noise Telemetry Receiver Assembled From Modular PC Assembly	Microprocessor Technology	2	25	0.5	0.5	Fed-NAVSEASYS/COM
NSSES 110	Instrumentation	Dynamic Radio-Frequency Tester, Signal Simulates Missile in Flight	Microprocessor Technology	2	20	0.3	0.3	Fed-NAVY NATO SEASPARROW
NRL 202	Instrumentation	Semiconductor Materials, Preparation for Electronics Applications	Metallurgy	Procedure for in-situ etch of III-V compound substrates prior to growth by liquid phase epitaxy of III-V layers having electronics applications.	--	--	--	Fed-Nav. Res. Lab.
NRL 204	Instrumentation	Controlled Porosity Dispenser Cathode Development	Microwave Tube Components	Controlled pore surface fabricated using modern microelectronic photolithography.	--	--	--	Fed-NAVELECS/COM

AD-A104 401

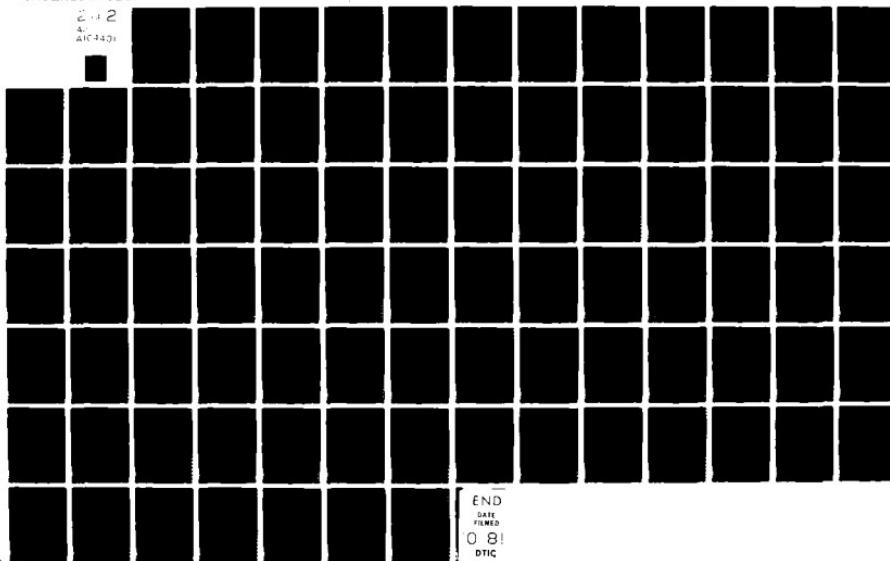
NAVAL MATERIAL COMMAND WASHINGTON DC
NAVY TECHNOLOGY TRANSFER PROGRAM FY 79 SUMMARY STATISTICS.(U)
1980

F/6 5/1

UNCLASSIFIED

2-12
AIC4401

NL



END
DATE
FILED
0 8!
DTIC

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY79	Sponsor
					FY79	FY80	FY79		
NCSC 174	Law Enforcement	Waterborne Intrusion Detection System--Sensors For Waterborne Intruders	Automatic Electronic Signal Processing	3 sensors under development: bistatic doppler sonar, target detection, and acoustic interferometer wader.	1220	2150	3.0	7.0	Fed--Physical Security Systems Directorate ESD/AFSC/USAF
NSWC 114	Law Enforcement	Self-Powered Vehicle Detector, Detects Vehicles on Any Roadway	Magnetic Surveillance Technology	20 system built and now being evaluated. Potential for traffic control.	50	0	1.0	0.0	Fed--DOT Fed. Highway Admin.
NOSC 180	Law Enforcement	E/O Character Recognition Study. Using Video Signals from Laser-Scanner TV System, Identify Alphanumeric Auto License Plates	Optical Detection	System of state-of-the art components analyzed. A 5% error rate cannot be met with current sensor.	12	0	0.2	--	Fed--Dept. of Justice Immigration and Naturalization Serv.

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
					FY79	FY80	FY80		
CEL 04	Marine Technology	Antifouling Marine Concrete to Line Ducts and for Floating Structure	Ocean Materials Science, Environment	Test cylinders exposed in fouling environment. Monthly evaluation continues.	50	0	0.4	0.0	Fed--Dept. Energy
DWT 21	Marine Technology	Investigation of Seaking and Maneuvering Characteristics of Various Ships	Hydrodynamics, Rudder Roll Stabilization (RRS)	RBS improvements complete. Corrective actions being implemented on cutters.	211	248	2.0	2.0	Fed--U.S. Coast Guard
DWT 31	Marine Technology	Integrated Tug/Barge Concept	Ship Concept Design	OPNAV directed more evaluation of concepts for destroyers and sub. tenders.	--	--	--	--	Fed--NAVSEASYSOM
NORDA 78	Marine Technology	Fiber-Optics Applications to Specific Ocean Measurement Projects	Oceanographic Instrumentation	Technology summary in progress.	60	80	0.8	0.6	Fed--NORDA
NOC 86	Marine Technology	Screening Test of Marine Wood Preservatives (3 Marine Test Sites)	Marine Biology	Panels exposed for 2 years, exposures continuing for bare, fungi resistance tests	0	0	0.0	0.0	NP--International Research Group on Wood Preservation
NOC 91	Marine Technology	Calibration Services for Temperature-Measuring Current Meters	Precision Measurement	10 current meters calibrated using unique facility for ocean environment simulation.	0	0	0.0	0.0	Fed--U.S. Geological Survey
NOC 93	Marine Technology	Plastic Teredo-Barriers for Marine Piling--Control Marine Boxers and Fungi	Marine Biology	No attack at 3 test sites. Program continuing.	0	0	0.1	--	Ind--Raychem Corp., Houston
NOC 94	Marine Technology	Instrumentation Calibration Services--Det. Salinity of Unknown Samples	Precision Measurement	Samples analyzed.	0	1	0.0	0.0	Ind--Beckman Instruments, Inc.
USNA 171	Marine Technology	European Dredging: A Review of the State of Art; to Improve Slip Maintenance by Navy	Sedimentation Control, Dredging	Attended conferences, visited experts, made site reviews, prepared report.	18	0	0.3	0.0	Fed--NAVFAC and Off. Nav. Res.
USNA 173	Marine Technology	Studies of Whales in Iceland and Their Management; Predict Arrival to Denmark Straits	Oceanography	Icelandic whaling operations observed, and film made.	3	0	0.1	0.0	Fed--Nat'l. Oceanic and Atmospheric Admin.

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
					FY79	FY80	FY79	FY80	
NOSC 181	Marine Technology	Bowhead Whale Acoustics (Are Whales Present in the Beaufort Sea?)	Marine Biology	6 aerial surveys yielded sonobuoy tape recordings of a number of Bowhead Whales.	95	0	0.3	0.0	Fed--U.S. Dept. Interior Bureau of Land Mgmt.
NOSC 178	Marine Technology	Scripps Exchange (Provide a Chief Scientist for the Deep Sea Drilling Project)	Deep Ocean Technology	Chief now active at Scripps Institute of Oceanography.	51	0	1.0	0.0	State--Univ. Calif.
NOSC 184	Marine Technology	Solid Rocket Booster (SRB) Dewatering Contingency Equipment (Space Shuttle Program)	Deep Ocean Technology	Two dewatering sets manufactured and acceptance tests witnessed.	116	0	1.6	0.0	Fed--NASA Kennedy Space Ctr.
NOSC 186	Marine Technology	Bowhead Whale Survey Arctic Alaska	Acoustic Detection	Determining number of whales. Project complete.	12	0	0.2	0.0	Fed--National Marine Fisheries
NOSC 195	Marine Technology	Unmanned Free-Swimming Inspection Vehicle Technology	Ocean Engineering	Univ. of New Hampshire and NOSC vehicle platforms have undergone feasibility tests in water.	282	329	2.3	2.2	Fed--Dept. of Interior U.S. Geological Survey
NOSC 198	Marine Technology	Acoustic Projector Installation	Underwater Acoustics	Project complete, Underwater Projector installation.	12	0	0.2	0.0	NP--Institute for Acoustic Research
NRL 239	Marine Technology	Ocean Thermal Energy Conversion	Mechanical Engineering	Enhance structural reliability of OTEC cold water pipe by recommending design changes.	--	--	--	--	Fed--National Oceanic and Atmospheric Admin.
ONR 240	Marine Technology	Hydraulic Transmission for Ship Propulsion	Ship Propulsion, Naval Architecture	Seawater as motive fluid, axial turbine provides thrust to propeller. Substantial reductions in weight and space.	45	--	1.0	--	Fed--Off. Nav. Res.

<u>Performing Technologi-</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Progress</u>	<u>Funding (\$K)</u>	<u>Man-Years</u>	<u>Sponsor</u>	
<u>Activity</u>				<u>FY79</u>	<u>FY80</u>	<u>FY81</u>	
DTR 17	Technological Guidance Investigate Bulk Cavitation Effects and Other Hull Loading Mechanisms for Ship Survivability	Bulk Cavitation Hull Loading	Literature review 50% complete.	35	270	0.6	4.0 Fed-Def. Nuclear Agency
DTR 24	Technological Guidance Analysis of Helo Decks for 270- and 210-ft Ships, Strength Analyses	Finite Element Analyses	Finite element model for web bending, developed. Deck strength analyzed.	50	10	0.7	0.1 Fed-U.S. Coast Guard
DTR 25	Technological Guidance CORT Full-Scale Trials, Springing	Springing Phenomena	Instrumentation installed on ore carrier and shakedown trials performed.	90	35	1.1	0.5 Fed-U.S. Coast Guard
NADC 34	Technological Guidance AIREYE Sensor System for MRS Aircraft (Medium-Range Surveillance)	Avionic Systems Search and Rescue	Modification/integration support complete. Development of activated TV sensor continues.	955	420	3.6	1.6 Fed-Dept. Trans., U.S. Coast Guard
NRIC 51	Technological Guidance Workshop on Organizational Survey Methods for Persons Working in Human Resource Management	Metalurgy	Additional workshops scheduled.	0	0	0.0	NP--Victoria Behavioral Research Assn., LTD
NAVSEA 105	Technological Guidance Metal Matrix Materials, e.g., Graphite Alum.	Metallurgy	Graphite alum composites have been produced; transfer of technology to recreation industry.	1300	2000	16.0	25.0 Fed-NAVSEASYS/COM
NAVSEA 106	Technological Guidance Isotropic Graphite Program--Pine-Gained, Nonporous Test Billets	Materials	Billets for TTS to civilian sector on request.	600	--	8.0	-- Fed-NAVSEASYS/COM
NAVSEA 107	Technological Guidance Boron Nitride Fiber Development, Temp.-Resist. Electric Nonconducting Window Material	Materials	Continuous boron nitride fibers produced on lab scale. Scale-up under way.	330	220	4.0	3.0 Fed-NAVSEASYS/COM
NTBC 124	Technological Guidance NTEC/Industry Conference; Mil. C.S., Indus Acad. and Foreign; First Conf in 66	Training Methodology	Interservice conference continuing. Proceedings published (NAVTRADEQUIPCEN IH-306).	--	--	--	Fed-NTBC
NSC 126	Technological Guidance Technological Information Conference; Source--Assigned as Staff Scientist	Computer Technology, Info Retrieval	Assisted in preparation of legislation, issued technical reports, developed software.	--	--	--	State--Connecticut General Assembly

Performing Technological Activity	Technological Guideline Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY79	Man-Years FY80	Sponsor
					FY79	FY80	FY79			
NUSC 127	Technological Guidance	Community Technology Initiatives Program—Circuit-Riding Technology Experts Small-City Needs	Communications, Management Methods	In past year over 100 problems solved on variety of needs.	33	--	--	--	--	NP--CTIP
NUSC 128	Technological Guidance	Technological Utilization Assistance Program to Help Identify and Solve Municipal Problems	Communication, Instrumentation, Management, etc.	Brings resources from industry, federal, and university research to solve municipal problems. Throughout Connecticut, 107 cities and towns of all sizes have been provided service in 250 individual cages, in 2 years.	--	--	--	--	--	State--Connecticut Conference of Municipalities
NUSC 130	Technological Guidance	CTIP—32 Cities and Counties Under 50,000 in Population	Computer Technology, Circuit Rider Technology Agent	Gathering and disseminating scientific and technological information to local governments. Responds to specific problems from local govts.	--	--	--	--	--	NP--NUSC New England Innovation Group, and Public Technology Inc.
NUSC 131	Technological Guidance	Technical Volunteer Service; to Solve Problems of Local Governments; 200 Participants; First Project Nationwide	Varied, Electronic, Computer Medical, Engineering, etc.	100 separate projects accomplished—acoustics, all energy, water quality, inventory control, toxicology, heart pacemakers, etc.	--	--	--	--	--	State--NUSC (fed, state, local)
NPRODC 168	Technological Guidance	San Diego Technology Action Center (SANDTAC) Action-Oriented Utilization Program—IPA	Support of Local Govt.	Cost saving of \$200K per year. Strong and fully responsive city-wide technical support.	60	60	2.0	2.0	2.0	State--City and County of San Diego, Nat'l. Sci. Found., Fed. Lab. Consortium
NPRODC 170	Technological Guidance	Local Government Assistance Task Force	Local Government San Diego	New needs caused by Proposition 13. Couple local needs with laboratory expertise.	--	--	--	--	--	Fed--Fed. Lab. Consortium
NOSC 179	Technological Guidance	Technical Coordinator for Federal Laboratory Consortium Assigned to the PNIG (IPA)	Technological Guidance	Assigned to Pacific Northwest Innovations Group.	15	15	1.0	0.0	0.0	NP--Pacific Northwest Innovation Group (funded by NSF)

Performing Technological Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
NSC 200	Technological Guidance	Local Government Assistance Task Force	General Assistance	Many issues defined. Stress disability retirement and energy link major problems for detailed pursuit.	3	0	0.1	0.0	State--City and County of San Diego
NRL 221	Technological Guidance	Laser Welding	Materials Research	Extend capability of laser welding to more complex weldments variety of materials.	0	0	0.0	0.0	Fed--NAVSEASYSCOM

Performing Technological Activity	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
				FY79	FY80	FY79		
CEL 03	Transportation Shrinkage Compensating Cement for Airport Pavements	Ceramics, Refractories	Research complete and research slab recommended. Other data being analyzed.	74	27	0.4	0.1	Fed--FFA
CEL 05	Transportation Survey on Traffic Markings for Runways, Taxiways, and Parking Aprons	Civil Engineering Paints, Pavements	State-of-the-art survey report complete and sent to printing.	17	8	0.3	0.1	Fed--Dept. Trans.
CEL 06	Transportation Evaluation of Lime-Treated Native Soils for Base Courses at Airports	Civil Engineering	Samples from Chino, CA; Big Bear, CA; and Payson, AZ airports indicated satisfactory. Criteria for these kinds of soils developed.	34	0	0.3	0.0	Fed--FFA
DWT 07	Transportation X-Wing Stopped-Rotor Aircraft	Analysis and Testing, Aerodynamics	Hybrid rotor/wing system flight-tested Potential high for short-haul transports, etc.	3100	18400	10.0	10.0	Fed--Def. Adv. Res. Proj. Agency
JCM 33	Transportation Small Turbofan Engine for Hi-Perform. Business Jet	Aeronautics	Version of Tomahawk sustainer engine will enter civilian market.	--	--	--	--	Fed--U.S. Air Force
JCM 175	Transportation Terrain Contour Matching (TERCOM) System for Navigation Update	Inertial Navigation	All 3 variants of the land-attack cruise missile use TERCOM.	--	--	--	--	Fed--Joint Cruise Missiles Project Off.
NAVAIR 40	Transportation Head-Up Display to Simulate Aircraft	Instrumentation Design	Approach and landing phase potential to commercial.	360	60	7.0	1.0	Fed--NAVAIRSYSCOM
NAVSEA 104	Transportation Carbon-Carbon Composites for Navy Missile Applic.	Metallurgy	Process for fabricating carbon-carbon composites in orthogonal configurations essentially complete.	700	150	8.0	2.0	Fed--NAVSEASYSCOM
NSWC 113	Transportation DOT-STAR System for Train Accident Reduction	Sensors; Materials	Thermal sensors and rail-contact sensors being evaluated.	250	120	2.0	2.0	Fed--DOT Fed. RR Admin.
NSWC 116	Transportation Hazardous Material Packaging, Develop Performance Standards	Container and Packaging	Test requirements for drums and pallets developed.	6	12	0.2	0.4	Fed--DOT Off. Hazardous Material
NSWC 118	Transportation Structural Separation System Explosive-Actuated, for Space Shuttle	Explosives Technology	Explosive cartridge designed, developed and delivered to NASA.	9	5	0.1	0.1	Fed--NASA Lyndon B. Johnson Space Center

Performing Technology Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
				FY79	FY80	FY79	FY80	
NSWC 121	Space Shuttle Destruct System; Destruct Linear Shaped Charges	Explosives Technology	Assessing effectiveness of charges under re-entry thermal conditions.	32	35	0.5	0.5	Fed--NASA George C. Marshall Space Flight Center
NOSC 183	Navigation Signal Monitor (Provide Aircraft Advisory Passive Sensors Information of OMEGA and VLF Disturb.)	Navigation (Provide Aircraft Advisory Passive Sensors Information of OMEGA and VLF Disturb.)	Design, acquisition of components and brass boarding for extension of VLF communications signals.	84	75	0.1	0.5	Fed--Dept. Trans.
NOSC 191	OMEGA Propagation	Navigation EM Wave Propagation	Consultation and propagation prediction; evaluated potential improvements to OMEGA.	625	565	4.5	4.5	Fed--U.S. Coast Guard
NOSC 192	Sea Hunt Equipment	Rescue Survival	Test and use trained pigeons to aid aerial searches over water in helicopters.	73	85	1.0	1.1	Fed--U.S. Coast Guard
NRL 213	High-Performance Composites and Adhesives for V/STOL Aircraft	Aerospace Materials Develop.	Predict resistance of composites and bonded points to flaw propagation.	260	0	--	--	Fed--NAVAIRSYSCOM
ONR 251	Propagation of Acoustic Energy in the Arctic	Computer Technology	Computer program will compute propagation loss as a function of range and depth as well as pulse shapes. Will accommodate rough boundaries between fluid interfaces.	150	208	3.0	4.0	Fed--Off. Nav. Res.

SECTION 4

TABLE OF CONTENTS

	<u>Pages</u>
Technology Transfer Projects Performed by Civil Engineering Laboratory (CEL)	4-3
Technology Transfer Projects Performed by David W. Taylor (DWT)	4-4--4-6
Technology Transfer Projects Performed by GIDEP Operations Center, U.S. Naval Fleet Analysis Center (FLTAC)	4-7
Technology Transfer Projects Performed by Joint Cruise Missiles Project Office (JCMPO)	4-8
Technology Transfer Projects Performed by Naval Air Development Center (NADC)	4-9
Technology Transfer Projects Performed by Naval Air Engineering Center (NAEC)	4-10
Technology Transfer Projects Performed by Naval Air Systems Command (NAVAIRSYSCOM)	4-11
Technology Transfer Projects Performed by Naval Sea Systems Command (NAVSEASYSYCOM)	4-12
Technology Transfer Projects Performed by Naval Air Test Center (NATC)	4-13
Technology Transfer Projects Performed by Naval Biosciences Laboratory (NBIOL)	4-14
Technology Transfer Projects Performed by Naval Coastal Systems Center (NCSC)	4-15
Technology Transfer Projects Performed by Naval Health Research Center (NHRC)	4-16--4-17
Technology Transfer Projects Performed by Naval Medical Research and Development Command (NMR&D)	4-18
Technology Transfer Projects Performed by Naval Mine Engineering Facility (NMEF)	4-19
Technology Transfer Projects Performed by Naval Ocean Research and Development Activity (NORDA)	4-20
Technology Transfer Projects Performed by Naval Ocean Systems Center (NOSE)	4-21--4-23
Technology Transfer Projects Performed by Naval Oceanographic Office (NOCE)	4-24--4-26
Technology Transfer Projects Performed by Naval Postgraduate School (NPS)	4-27
Technology Transfer Projects Performed by Naval Research Laboratory (NRL)	4-28--4-32
Technology Transfer Projects Performed by Naval Surface Weapons Center (NSWC)	4-33
Technology Transfer Projects Performed by Naval Ship Weapon Systems Engineering Station (NSSES)	4-34
Technology Transfer Projects Performed by Naval Training Equipment Center (NTEC)	4-35
Technology Transfer Projects Performed by Naval Underwater Systems Center (NUSC)	4-36--4-37

TABLE OF CONTENTS

	<u>Pages</u>
Technology Transfer Projects Performed by Naval Weapons Center (NWC)	4-38--4-41
Technology Transfer Projects Performed by Naval Weapons Support Center (NWSC)	4-42
Technology Transfer Projects Performed by Navy Personnel Research and Development Center (NPRDC)	4-43
Technology Transfer Projects Performed by Office of Naval Research (ONR)	4-44--4-45
Technology Transfer Projects Performed by U.S. Naval Academy (USNA)	4-46

PROJECTS PERFORMED BY THE CIVIL ENGINEERING LABORATORY, PORT HUENEME, CA
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
				FY79	FY80	FY79		
CEL 01	Energy	Organic Rankine Bottoming System for Diesels to Decrease Fuel Consumption	Air Conditioning, Heating, Lighting Ventilation	No adverse effect on environment found; Navy-DOE agreement made.	616	120	0.9	1.0 Fed--Dept. Energy and Navy
CEL 02	Health and Medicine	Brain Model for Study of Response/Injury Relationship	Bioengineering, Solid Mechanics	Small primates being studied; injuries computer program written.	138	83	1.2	0.8 Fed--Dept. Trans.
CEL 04	Marine Technology	Antifouling Marine Concrete to Line Ducts and for Floating Structure	Ocean Materials Science, Environment	Test cylinders exposed in fouling environment. Monthly evaluation continues.	50	0	0.4	0.0 Fed--Dept. Energy
CEL 03	Transportation	Shrinkage Compensating Cement for Airport Pavements	Ceramics, Refractories	Research complete and research slab recommended. Other data being analyzed.	74	27	0.4	0.1 Fed--FAA
CEL 05	Transportation	Survey on Traffic Markings for Runways, Taxiways, and Parking Aprons	Civil Engineering Paints, Pavements	State-of-the-art survey report complete and sent to printing.	17	8	0.3	0.1 Fed--Dept. Trans.
CEL 06	Transportation	Evaluation of Lime-Treated Native Soils for Base Courses at Airports	Civil Engineering	Samples from Chino, CA; Big Bear, CA; and Payson, AZ airports indicated satisfactory. Criteria for these kinds of soils developed.	34	0	0.3	0.0 Fed--FAA

PROJECTS PERFORMED BY THE DAVID W. TAYLOR NAVAL SHIP R&D CENTER, BETHESDA, MD
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Project Description	Navy Technology Applied	Progress	Funding (\$K)		Man-Years FY79	Man-Years FY80	Sponsor
				FY79	FY80			
DWT 14 Analysis and Testing	Effect of Radial Load Distribution on Propeller Cavitation Erosion	Hydrodynamics	Cavitation erosion tests complete.	10	0	0.1	0.0	NP--Soc. Nav. Arch. and Engrs.
DWT 15 Analysis and Testing	Evaluation of Effectiveness of Protective Coatings for Propellers	Hydrodynamics, Propeller Coating	Procedures are being developed. Samples have been tested.	41	0	0.4	0.0	Fed--Maritime Admin.
DWT 18 Analysis and Testing	Stress Relaxation Characteristics of Elastomeric Isolation Mounts	Maintenance Reduction, Machinery Silencing	Apparatus to monitor stress designed. Isolation mounts received.	100	100	0.5	0.5	Fed--Fed Railroad Admin.
DWT 19 Analysis and Testing	Energy Conservation Study on Tandem Propellers	Propeller Design, Performance Testing	Experiments made to evaluate tandem design. Report on propulsion tests.	45	--	0.6	--	Fed--Maritime Admin.
DWT 22 Analysis and Testing	Full-Scale Stress Measurements on Controllable Pitch Propeller	Propeller Loads and Stresses, Spindle Torque	Full-scale trials conducted in ice and open water. Some findings reported.	603	200	6.0	2.3	Fed--U.S. Coast Guard
DWT 26 Analysis and Testing	Avondale Shipyard Powering Instrumentation Trials, Provide Torsion-Meter and Assist in Installation	Instrumentation of Trial	Report published. DTNSRDC 79/084	4	95	0.1	0.9	Ind--Avondale Shipyards, Inc.
DWT 27 Analysis and Testing	Tanker Berthing Evaluation Instrumentation Trials	Instrumentation of Trial	Trials conducted to gather tug/ship interaction forces; report issued.	--	--	--	--	Fed--Dept. Commerce
DWT 28 Analysis and Testing	Shallow Water Maneuvering Trials	Instrumentation of Trial	Trials run; parameters measured; report published.	20	--	0.2	--	Fed--Maritime Admin.
DWT 29 Analysis and Testing	HMS ADDIRIYAH (MSC-412) Standardization, Tactical, and Fuel Economy Trials	Instrumentation of Trial	Trials concluded and report published.	4	95	0.1	0.9	Fed--NAVSEASYSCOM
DWT 30 Analysis and Testing	KATMAI Bay (WTGB-101) Speed, Tactical, and Maneuvering Trials	Instrumentation of Trial	Tactical, maneuvering, speed-vs-shaft-RPM, and ice-breaking trials conducted.	64	227	0.8	2.7	Fed--U.S. Coast Guard

PROJECTS PERFORMED BY THE DAVID W. TAYLOR NAVAL SHIP R&D CENTER, BETHESDA, MD
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)		Man-Years FY80	Sponsor
					FY79	FY80		
DWT 08	Computer Technology	Computer-Aided Ship Design and Construction	Computer-Aided Ship Design	Development and dissemination of computer programs; available for Navy work.	400	700	2.0	4.0 Fed--NAVSEASYSCOM
DWT 20	Energy	MARAD Tandem Propeller Follow-On Program	Hydrodynamics, Tandem Propellers	Design requirements for test propellers being checked.	35	104	0.3	0.7 Fed--Maritime Admin.
DWT 09	Environment	Carbon Fiber Protection	Composite Materials	Methods to minimize entry of fibers into critical systems developed. Conformal coatings being evaluated.	490	400	5.0	4.0 Fed--Rome Air Dev. Cen.
DWT 10	Environment	USCG Marine Sanitation Devices Evaluation	Ship Systems, Maintenance Logistics	Current capabilities and new technology being identified.	32	0	0.4	0.0 Fed--U.S. Coast Guard
DWT 11	Environment	Recovery Device: Oil/Water Separator (OWS)	Shipboard OWS Systems	Constraint matrix for evaluation complete.	81	65	1.5	0.8 Fed--U.S. Coast Guard
DWT 12	Environment	USCG Oil/Water Separator Detergent	Chemistry, Detergent Experience	Emulsion stability tests performed. Outline for engine room cleaning developed.	80	75	0.5	0.7 Fed--U.S. Coast Guard
DWT 23	Environment	NOAA Current Sensor Experiments for Cable-Body Systems	Hydrodynamics, Environmental Measurements	Current meters calibrated under at-sea conditions.	66	50	0.5	0.4 Fed--National Oceanic and Atmospheric Admin.
DWT 13	Fire and Safety	Inspection Testing—Lifesaving Equipment	Inspection and Testing	Tests of individual items of lifesaving equipment (life jackets, life rafts, etc.).	60	67	0.8	0.8 Fed--Def. Const. Supply Ctr.
DWT 16	Fire and Safety	Fire Resistance Tests (Hydraulic Fluids for Shipboard)	Inspection	Has only facility (modified compression fire-resistant engine) to test shipboard hydraulic fluids for Navy.	10	27	0.1	0.2 Fed--Def. Gen. Supply Ctr.
DWT 21	Marine Technology	Investigation of Seakeeping and Maneuvering Characteristics of Various Ships	Hydrodynamics, Rudder Roll Stabilization (RRS)	RRS improvements complete. Corrective actions being implemented on cutters.	211	248	2.0	2.0 Fed--U.S. Coast Guard

PROJECTS PERFORMED BY THE DAVID W. TAYLOR NAVAL SHIP R&D CENTER, BETHESDA, MD
LISTED BY TECHNOLOGICAL AREA

Performing Technologi- cal Activity	Technologi- cal Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
DEPT 31	Marine Technology	Integrated Tug/Barge Concept	Ship Concept Design	OPNAV directed more evaluation of concepts for destroyers and sub. tenders.	—	—	—	—	Fed--NAVSSEASYSCOM
DEPT 17	Technological Guidance	Investigate Bulk Cavitation Effects and Other Hull Loading Mechanisms for Ship Survivability	Bulk Cavitation Hull Loading	Literature review 50% complete.	35	270	0.6	4.0	Fed--Def. Nuclear Agency
DEPT 24	Technological Guidance	Analysis of Heli Decks for 270- and 210-ft Ships, Strength Analyses	Finite Element Analyses	Finite element model for web bending, developed. Deck strength analyzed.	50	10	0.7	0.1	Fed--U.S. Coast Guard
DEPT 25	Technological Guidance	CORT Full-Scale Trials, Springing Spring	Springing Phenomena	Instrumentation installed on ore carrier and shakedown trials performed.	90	35	1.1	0.5	Fed--U.S. Coast Guard
DEPT 07	Transportation	X-Wing Stopped-Rotor Aircraft	Analysis and Testing, Aerodynamics	Hybrid rotor/wing system flight-tested. Potential high for short-haul transports, etc.	3100	18400	10.0	10.0	Fed--DARPA

PROJECTS PERFORMED BY GIDEP OPERATIONS CENTER, U.S. NAVAL FLEET ANALYSIS CENTER, CORONA, CA
LISTED BY TECHNOLOGICAL AREA

<u>Performing Technological Activity</u>	<u>Technological Area</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Progress</u>	<u>Funding (\$K) Man-Years</u>			<u>Sponsor</u>
					<u>FY79</u>	<u>FY80</u>	<u>FY79</u>	<u>FY80</u>
FLDAC 32	Analysis and Testing	GIDEP Operations Center	Computer Data Processing and Analysis, Communications Networking	\$24 million savings (cost avoidance) in CY 1978 plus intangibles.	1700	2000	10.0	11.0

PROJECTS PERFORMED BY THE JOINT CRUISE MISSILES PROJECT OFFICE, WASHINGTON, DC
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
				FY79	FY80	FY79		
JCMPO 33	Small Turbofan Engine for Hi-Perform. Business Jet	Aeronautics	Version of Tomahawk sustainer engine will enter civilian market.	--	--	--	--	Fed--U.S. Air Force
JCMPO 175	Terrain Contour Matching (TERCOM) System for Navigation Update	Inertial Navigation	All 3 variants of the land-attack cruise missile use TERCOM.	--	--	--	--	Ped--Joint Cruise Missiles Project Off.

PROJECTS PERFORMED BY THE NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
NADC 36	Computer Technology	Predictive Codes for Engine Materials and Costs	Engine Cost Analysis	Modification of computer codes continuing.	0	0	0	0.0	Fed--NASA Lewis Research Center
NADC 37	Health and Medicine	Efficacy of Symptomatic G-Suit Inflation	Stress Physiology	Human performance measured during centrifuge runs	26	0	2.4	0.0	Fed--NASA Johnson Space Center
NADC 35	Instrumentation	Retrodirective Array Development/Evaluation for All-Weather Identification	Radar Systems, Sensor Development	Radar delivered array evaluated, report submitted	350	0	2.0	0.0	Fed--Dept. Trans., U.S. Coast Guard
NADC 34	Technological Guidance	AIREYE Sensor System for MRS Aircraft (Medium-Range Surveillance)	Avionic Systems Search and Rescue	Modification/integration support complete. Development of active gated TV sensor continues.	955	420	3.6	1.6	Fed--Dept. Trans., U.S. Coast Guard

PROJECTS PERFORMED BY THE NAVAL AIR ENGINEERING CENTER, LAKEHURST, NJ
LISTED BY TECHNOLOGICAL AREA

Performing Technology Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
				FY79	FY80	FY79		
NAEC 260 and Testing	Wear Debris Analysis	Wear Analysis	Characterization of wear in oil lubricated systems. Standardization of ferrographs.	--	--	--	--	Foreign--Great Britain
NAEC 261 and Testing	Infrared Thermography as Inspection Technique	Nondestructive Testing	Quantification of flow type size, and depth detectable in composites.	46	47	1.5	1.5	Fed--NAVAIRSYSCOM
NAEC 262	Environment Jet Engine Noise Suppression	Testing jet engines	Development of exhaust noise suppressor configuration for test cells for out-of-airframe engines. Aircraft acoustic enclosures.	--	--	--	--	Fed--NAVMATCOM

PROJECTS PERFORMED BY NAVAL AIR SYSTEMS COMMAND, WASHINGTON, DC
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
				FY79	FY80	FY79		
NAVAIR Communications 42	Microstrip Dipole Antennas for Tactical Missile Use	Electronics	Potential application to TV, radio direction finding, aircraft altimeter, etc.	--	--	--	--	Fed--NAVAIRSYS.COM
NAVAIR 41	Fire and Safety	Swimmer Protective Helmet	Human Factors	May be utilized in underwater construction, rescue, salvage operations.	--	--	--	Fed--NAVAIRSYS.COM
NAVAIR 39	General Assistance	Water Displacing Corrosion Prevention Compound	Materials Research and Development	New material for superior to prior corrosion-control compounds. Numerous potential applications.	35	35	1.0	1.0 Fed--NAVAIRSYS.COM
NAVAIR 38	Instrumentation	Portable Hydrogen Measuring System	Materials Research and Development	Uses barnacle electrode measuring system. Potential wherever there is high-strength steel.	30	30	1.0	1.0 Fed--NAVAIRSYS.COM
NAVAIR 40	Transportation	Head-Up Display to Simulate Aircraft	Instrumentation Design	Approach and landing phase potential to commercial.	360	60	7.0	1.0 Fed--NAVAIRSYS.COM

PROJECTS PERFORMED BY THE NAVAL AIR TEST CENTER, PATUXENT RIVER, MD
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Funding (\$K) Man-Years			Sponsor
				FY79	FY80	FY79	
NATC 43	Fire and Safety	Head-Up Display to Simulate Aircraft	---	---	---	---	Ped--NAVAIRSYSCOM

PROJECTS PERFORMED BY THE NAVAL BIOSCIENCES LABORATORY, NAVAL SUPPLY CENTER, OAKLAND, CA
LISTED BY TECHNOLOGICAL AREA

Performing Technologi- cal Area	Project Description	Navy Technology Applied	Progress	Funding (\$K) Man-Years				Sponsor
				FY79	FY80	FY79	FY80	
NB IOL 44	Environment Effect of Energy Conservation on Air Hygiene	Bacteriology, Ex- particles in col- lecting bacteria	Semiautomatic samplers for counting airborne bacteria used to evaluate ventilation.	130	0	2.5	0.0	Fed-Dept. Energy
NB IOL 46	Environment Development of an Oil Identification Kit	Chemistry, Thin- Layer Chromatog- raphy	Finger printing on board ship help to identify source of oil slick.	13	0	0.2	0.0	Fed-Off. Nav. Res.
NB IOL 45	Health and Medicine Study of Antiherpesvirus Material from Algae	Virology Tissue Culture Expertise	Polysaccharide active in vitro; a protein with in vivo activity.	30	30	0.8	0.8	Fed-Sea Grant College Program

PROJECTS PERFORMED BY THE NAVAL COASTAL SYSTEMS CENTER, PANAMA CITY, FL
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K) Man-Years			Sponsor
					FY79	FY80	FY79	
NCSC 47	Energy	Ocean Thermal Energy Conversion (OTEC) Heat Exchanger Cleaning	Heat Exchanger Technology	Testing and evaluation of in-situ biofouling countermeasures in potential materials continue.	300	152	4.0	2.5 Fed-Dept. Energy
NCSC 49	Environment	Offshore Pollutant Effects Program; Test Facility	Test and Evaluation; Unique Facility	New seawater Pumping system being designed EPA performs tests.	95	150	0.5	1.0 Fed-EPA, Environmental Research Lab
NCSC 48	Instrumentation	Determine Beach Traversability in an Amphibious Operational Area	Electro-Optic Hydrographic Mapping	Aircraft-mounted sensor technique workable in bad weather.	197	240	1.0	1.2 Fed-NAVAIRSYSCOM
NCSC 174	Law Enforcement	Waterborne Intrusion Detection System—Sensors for Waterborne Intruders	Automatic Electronic Signal Processing	3 sensors under development: bistatic doppler sonar, target detection, and acoustic interferometer wader.	1220	2150	3.0	7.0 Fed--Physical Security Systems Directorate ASD/AFSC/USAF

PROJECTS PERFORMED BY THE NAVAL HEALTH RESEARCH CENTER, SAN DIEGO, CA
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)		Man-Years		Sponsor
					FY79	FY80	FY79	FY80	
NHRC 50	Health and Medicine	Program for Medical Care of POWs from All Wars	Analysis, Medical Exams, Effects of Captivity	Continued consultation with VA, 5-year follow-up on Vietnam POWs; data collected.	1	1	0.1	0.1	Fed--Veterans Admin.
NHRC 52	Health and Medicine	Conference on Navy Occupational Health	Behavior Science, Organizational Dev. Theory	Conference proceedings circulated	25	0	0.3	0.0	Fed--Off. Nav. Res. and NMRED Comm.
NHRC 53	Health and Medicine	Research Findings in Areas of Stress-Related Illnesses	Relationship between Stress and Illness	World literature on effects of life changes, development of illness--a major research endeavor.	3	3	0.2	0.2	Fed--Various
NHRC 54	Health and Medicine	Stress-Related Disability Retirements	Epidemiological Research	Publicity continues and more data forthcoming.	1	1	0.1	0.1	NP--Local Government Assistance Task Force (PLC-Far West Region)
NHRC 55	Health and Medicine	Understanding Sleep Disorders--Education of Professionals	Sleep and Sleep Disorders	Education continuing work shops.	0	0	0.1	0.1	State--Univ. Calif. BiMed and Surgery
NHRC 56	Health and Medicine	Education of Public in Sleep, Dreams, and Brain-wave Activity	Laboratory Research	College settings, media.	0	0	0.1	0.1	Fed--Various
NHRC 57	Health and Medicine	Education of Physicians on Sleep, Sleep Disorders and Pills	Sleep Disorders, Effect on Performance	Consultation to physicians.	0	0	0.1	0.1	Fed--Various
NHRC 58	Health and Medicine	Health and Safety of Shift Workers--International Meeting Sep 79	Work-Sleep Schedules	Proceedings being compiled, yearly meeting proposed.	40	0	0.1	0.1	Ind--Upjohn International and Navy
NHRC 59	Health and Medicine	Effects of Stress or Simulated Combat on Unit Readiness/Effectiveness	Sleep Deprivation	Background on research supplied.	0	0	0.0	0.0	Ped--U.S. Army Inst. for the Behavioral and Social Sciences
NHRC 60	Health and Medicine	POWs--Medical Followup Research	Medical and Family Research on POWs	Prolonged Stress Branch continues medical followup.	0	0	0.0	0.0	NP--Various POW Organizations
NHRC 61	Health and Medicine	Overview of Current Family Research Efforts in Navy Populations	Health of the Military Family	Overview of findings and methodologies of family research provided.	1	0	0.0	0.0	Fed--Various

PROJECTS PERFORMED BY THE NAVAL HEALTH RESEARCH CENTER, SAN DIEGO, CA
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Sponsor
					FY79	FY80	FY79	FY80
NHRC 51	Technological Guidance	Workshop on Organizational Survey Methods Climate for Persons Working in Human Resource Management	Additional workshops scheduled.	0	0	0.0	0.0	NP--Victoria Behavioral Research Assn., LTD

PROJECTS PERFORMED BY THE NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMM., NATIONAL NAVAL MEDICAL CENTER, BETHESDA, MD
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Project Description	Navy Technology Applied	Progress	Funding (\$K) Man-Years			Sponsor	
				FY79	FY80	FY79	FY80	
NMRD 62	Health and Medicine Design and Test of an Integrated Modular Clinical Laboratory for Shipboard Use	Bioengineering, Medical Equipment	Extensive clinical laboratory testing.	38	--	0.9	--	Fed--NMRD Comm.
NMRD 63	Health and Medicine Study of Louse Infestation in Ethiopia	Entomology, Epidemiology	Physical, behavioral, cultural, physiological factors included in publication.	3	--	0.5	--	Fed--NMRD Comm.
NMRD 64	Health and Medicine Recompression Treatment Tables Used Throughout the World by Government and Industry	Hyperbaric Physiology	World-wide recompression diving procedures available (DTIC AD A056666).	39	--	0.7	--	Fed--NMRD Comm. and NAVSEASYSCOM
NMRD 65	Health and Medicine Portable Field Kit for Rapid Disease Diagnosis	Microbiology	Kit undergoing extensive testing and evaluation.	53	76	0.8	0.9	Fed--NMRD Comm.
NMRD 66	Health and Medicine Navy Amphibious Medical Evacuation Simulation (NAMES II) Computer Model	Clinical Medicine, Operations Research	NAMES II expanded from combat zone to CORUS, Applicable to medical emergencies.	75	75	0.6	0.6	Fed--NMRD Comm.
NMRD 67	Health and Medicine Remote Medical Diagnosis System (RMDS) with Slow-Scan TV	Biomedical Engineering, Communications	RMDs for ships and diagnostic centers being spec'd. Video via satellite.	200	800	1.8	2.3	Fed--NMRD Comm.
NMRD 68	Health and Medicine Management of War Injuries to the Jaws and Related Structures Textbook	Clinical Medicine	Publication includes data since 1968, GPO Stock No. 008-045-00018-6.	--	--	--	--	Fed--NMRD Comm.
NMRD 69	Health and Medicine Portable Life Support Stretcher Self-Contained Unit	Biomedical Engineering, Medical Equipment	5 units fabricated and under evaluation.	50	40	0.7	0.3	Fed--NMRD Comm.
NMRD 70	Health and Medicine Medical Backpack—Transport Life Support to Shipboard Casualty	Medical and Hospital Equipment, Biomedical Engineering	3-month evaluation by ships and research and rescue yielded favorable recommendation.	8	80	0.2	0.4	Fed--NMRD Comm.

PROJECTS PERFORMED BY THE NAVAL MINE ENGINEERING FACILITY, YORKTOWN, VA
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
					FY79	FY80	FY79		
NMEP 71	Analysis and Testing	Hydrogen Evolution Rates, Dev. of Hydrogen Getter	Equipment Development	Gathers great commercial potential for use in seal vessels containing batteries.	4	--	0.1	--	Fed--NAVSYSYSCOM

PROJECTS PERFORMED BY THE NAVAL OCEAN RESEARCH AND DEVELOPMENT ACTIVITY, NSTL STATION, NS
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Sponsor
					FY79	FY80	FY79	
NORDA 75	Computer Technology	Optical Character Recognition, Improve Capability to Process Data	OCR--Computer Hardware/Software	Cognitive, handprinted input trained recursively analyzer (CHIRRA) method of recognizing handwritten characters developed.	283	237	1.0	1.0 Fed--Defense Mapping Agency
NORDA 73	Energy	OTEC Flexible Cold Water Pipe	Hi-Strength Fabrics	Evaluation of candidate designs for OTEC modular experimental platform.	300	75	2.0	1.0 Fed--Dept. Energy
NORDA 72	Instrumentation	Expendable Current Profiler, Instrumentation for Measurement of Horizontal Currents	XBT Technology Geomagnetic Electro-Rhino-graph	Instrument in production, sampling techniques demonstrated. NAVOCEANO to include in surveys.	180	100	1.5	1.5 Fed--NORDA
NORDA 74	Instrumentation	Thermistor Array Development, Moored, Long-Term At-Sea Operation	Kevlar Cable, Semiconductor Sensors	Design complete, array fabricated.	70	--	0.7	-- Fed--NOAA Data Buoy Office
NORDA 76	Instrumentation	Remote Ocean Subsurface Temperature Profiler	Laser, Remote Sensing	Optical and electronic, components fabricated, testing begun.	12	21	0.2	0.3 Fed--Nav. Res. Lab.
NORDA 77	Instrumentation	Towed Ocean Density System, Towed Sensor Array	Kevlar Cable, Semiconductor Sensors	Design complete, fabrication begun.	185	170	2.5	2.7 Fed--NORDA
NORDA 79	Instrumentation	Easily Deployable Sub-surface-Tethered Vehicle That Can Sample the Water Column	Variable Buoyancy, Satellite Transmission	Construction complete, preliminary tests made.	250	--	2.0	-- Fed--NORDA
NORDA 80	Instrumentation	Versatile Experimental Kevlar Array--for Deployment in Ocean	Navy Cable Development Technology	Development of versatile experimental Kevlar array (VEKA) program.	308	520	5.0	3.7 Fed--NORDA
NORDA 78	Marine Technology	Fiber-Optics Applications to Specific Ocean Measurement Projects	Oceanographic Instrumentation	Technology summary in progress.	60	80	0.8	0.6 Fed--NORDA

PROJECTS PERFORMED BY THE NAVAL OCEAN SYSTEMS CENTER, SAN DIEGO, CA
LISTED BY TECHNOLOGICAL AREA

<u>Performing Activity</u>	<u>Technological Area</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Progress</u>	<u>Punding (\$K)</u>			<u>Man-Years</u>	<u>Sponsor</u>
					<u>FY79</u>	<u>FY80</u>	<u>FY81</u>		
NDSC 177	Analysis and Testing	Calibration and Evaluation Services (Work in Support of DOD Contracts)		Services performed on individual basis.	22	24	0.5	0.5	Industry
NDSC 188	Analysis and Testing	Analysis of U.S. Coast Guard Systems, Coastal Surveillance	Operations Research	10-year operational systems plan, catalog of required task capabilities for each platform class, and trade-offs developed.	310	100	3.0	1.0	Fed--U.S. Coast Guard
NDSC 194	Analysis and Testing	USCG Evaluation of SSP (Swath-Type) Kaimalino	Marine Engineering	Sea trials completed.	58	0	0.3	0.0	Fed--U.S. Coast Guard
NDSC 199	Analysis and Testing	Methods for Trace Metals in Seawater by Flameless Atomic Absorption Spectrophotometry	Inorganic Chemistry	60 seawater samples analyzed for copper and zinc.	10	0	0.2	0.0	NP--APL/JHU
NDSC 176	Communications	Polar Communication Prediction System	Electromagnetic Environment Prediction	System using solar/conospheric disturbance techniques demonstrated to FAA.	50	0	0.5	0.0	Fed--Dept. Trans., FAA
NDSC 187	Computer Technology	Impact of a Formal Computer-Based Information System on Informal Info Networks	Information Transfer, Man-Machine Relations	Groups of people, and computer-based systems, selected. Analyses under way.	70	0	0.6	0.0	Fed--National Science Found.
NDSC 189	Computer Technology	Small Boat Simulator, Training Operations	Display Devices and Equipment	Trailer delivered, consoles installed. Radar simulator, flying spot scanner, software nearly complete.	352	111	3.9	1.0	Fed--U.S. Coast Guard
NDSC 196	Computer Technology	Image Acquisition and Processing (for Automated Mail Handling)	Optics, Computer Science	Image capture and analysis system operating. Full-page images at 10 pages/sec acquired.	832	500	7.8	4.0	Fed--U.S. Postal Service
NDSC 182	Environment	Environmental Response and Effects (Following Accidental Marine Deposition of Radioactive Material)	Radiation Shielding	Samples being analyzed.	50	50	0.3	0.3	Fed--Dept. Energy Safety/Isotope-Fuel Branch

PROJECTS PERFORMED BY THE NAVAL OCEAN SYSTEMS CENTER, SAN DIEGO, CA
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
NOSC 190	Environment Merchant Marine Occupational Noise	Acoustics, Human Factors	Background info on noise on U.S. merchant ships. Noise standards recommended.	56	120	0.8	1.3	Fed--U.S. Coast Guard	
NOSC 185	Fire and Safety	Kerosene Jet Breakup Study (Fire Suppression Following Crashes)	Fuels, Drag Reduction Additives	8 additives tested. General correlation of spray inhibition with drag reduction measurements shown.	15	0	0.2	0.0	Fed--NASA Ames Research Center
NOSC 193	Health and Medicine	Crew Performance Assessment (Effect of Ship Motion)	Information Theory, Psychology	3 studies under way. 3 classes of ships under operating conditions.	86	0	1.1	0.0	Fed--U.S. Coast Guard
NOSC 197	Health and Medicine	Human Factors Technology Transfer--Mobility for Paraplegics	Bioengineering Prosthetics	Wheelchair ambulator completed. Wheelchair to integrate fabricated. Whole system being tested.	106	14	1.2	0.1	Fed--Veterans Admin.
NOSC 180	Law Enforcement	B/O Character Recognition Study. Using Video Signals from Laser-Scanner TV System, Identify Alphanumeric Auto License Plates	Optical Detection	System of state-of-the art components analyzed. A 5% error rate cannot be met with current sensor.	12	0	0.2	--	Fed--Dept. of Justice Immigration and Naturalization Serv.
NOSC 181	Marine Technology	Bowhead Whale Acoustics (Are Whales Present in the Beaufort Sea)	Marine Biology	6 aerial surveys yielded sonobuoy tape recordings of a number of Bowhead Whales.	95	0	0.3	0.0	Fed--U.S. Dept. Interior Bureau of Land Mgmt.
NOSC 178	Marine Technology	Scripps Exchange (Provide a Chief Scientist for the Deep Sea Drilling Project)	Deep Ocean Technology	Chief now active at Scripps Institute of Oceanography.	51	0	1.0	0.0	State--Univ. Calif.
NOSC 184	Marine Technology	Solid Rocket Booster (SRB) Dewatering Contingency Equipment (Space Shuttle Program)	Deep Ocean Technology	Two dewatering sets manufactured and acceptance tests witnessed.	116	0	1.6	0.0	Fed--NASA Kennedy Space Ctr.
NOSC 186	Marine Technology	Bowhead Whale Survey Arctic Alaska	Acoustic Detection	Determining number of whales. Project complete.	12	0	0.2	0.0	Fed--National Marine Fisheries

**PROJECTS PERFORMED BY THE NAVAL OCEAN SYSTEMS CENTER, SAN DIEGO, CA
LISTED BY TECHNOLOGICAL AREA**

Performing Technological Activity Area	Project Description	Navy Technology Applied	Progress	Funding (\$K) Man-Years			Sponsor
				FY79	FY80	FY79 FY80	
NOSC 195	Marine Technology Unmanned Free-Swimming Inspection Vehicle Technology	Ocean Engineering	Univ. of New Hampshire and NOSC vehicle Platforms have undergone feasibility tests in water.	282	329	2.3 2.2	Fed--Dept. of Interior U.S. Geological Survey
NOSC 198	Marine Technology Acoustic Projector Installation	Underwater Acoustics	Project complete, Underwater projector installation.	12	0	0.2 0.0	NP--Institute for Acoustic Research
NOSC 179	Technological- Technical Coordinator for Federal Laboratory Consortium Assigned to the PNIG (IPA)	Technological Guidance	Assigned to Pacific Northwest Innovations Group.	15	15	1.0 0.0	NP--Pacific Northwest Innovations Group (funded by NSF)
NOSC 200	Technological- Local Government Assistance Task Force	General Assistance	Many issues defined. Stress disability retirement and energy link major problems for detailed pursuit.	3	0	0.1 0.0	State--City and County of San Diego
NOSC 183	Transportation Navigation Signal Monitor (Provide Aircraft Advisory Passive Sensors Information of OMEGA and VLF Disturb.)	Navigation	Design, acquisition of components and brass boarding for extension of VLF communications signals.	84	75	0.1 0.5	Fed--Dept. Trans.
NOSC 191	Transportation OMEGA Propagation	Navigation EM Wave Propagation	Consultation and propagation prediction; evaluated potential improvements to OMEGA.	625	565	4.5 4.5	Fed--U.S. Coast Guard
NOSC 192	Transportation Sea Hunt Equipment	Rescue Survival	Test and use trained pigeons to aid aerial searches over water in helicopters.	73	85	1.0 1.1	Fed--U.S. Coast Guard

**PROJECTS PERFORMED BY THE NAVAL OCEANOGRAPHIC OFFICE, NSTL STATION, MS
LISTED BY TECHNOLOGICAL AREA**

Performing Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
				FY79	FY80	FY79		
NOC Communications 81	Foreign Officer Training Program in Hydrographic Surveying/Coastal Oceanography	Marine Technology Hydrography	In FY 79, 19 officers from 6 countries trained.	--	--	4.0	4.0	Fed-CNO Security Assistance Training Program
NOC Computer Technology 87	Automated Techniques for Detecting Ocean Thermal Fronts	Imagery Pattern Recognition	Papers released.	32	32	1.0	1.0	Fed-NAVOC
NOC Energy 84	Magnetic Survey--Indonesia Straits; To Map Resources	Airborne Magnetic Survey Capability	Data on Sunda Strait and Makassar Strait gathered, processed, and delivered.	--	--	--	--	Foreign-International Govt.
NOC Energy 88	OTEC Biofouling Experiment in the Gulf of Mexico; to determine harmful effect of marine organisms	Marine Biology	Prediction of macro-fouling organisms and effects over 30-yr. power plant life.	10	5	0.3	0.2	Fed-Dept. Commerce National Data Buoy Office
NOC Environment 92	Experimental Ocean Frontal Analysis Chart	Oceanographic Analysis	Sea-surface temperatures in Western North Atlantic provided weekly.	22	22	1.0	1.0	Fed-NAVOC
NOC Instrumentation 82	Indonesian/US Hydrographic Survey Operations	Coastal Hydrographic Surveys	2 large areas now being surveyed. Aid to Indonesian economy.	--	--	--	--	Fed-Def. Mapping Agency, NAVOC
NOC Instrumentation 83	Joint US/Republic of Korea Survey Operations Coasts and Harbors	Coastal Hydrographic Surveys	75% of both ROK coastlines complete. Survey's continue.	--	--	--	--	Fed-Def. Mapping Agency, NAVOC
NOC Instrumentation 85	Hydrographic Survey Assistance Program for Other Governments	Coastal Hydrographic Surveys	1.3K mile completed in Panama OPS.	--	--	--	--	Fed-Def. Mapping Agency, NAVOC
NDC Instrumentation 89	Instrumentation Services	Pressure Chamber Design	Testing biological tracking enclosures. Repair underwater measurement system.	2	3	--	--	Fed-NOMA, Dept. Commerce
NOC Instrumentation 90	Instrumentation--Transducer Performance Study of Bubble Sweepdown	Hydrographic Coastal Survey, Ocean Engineering	Extending transducer below bottom of launch improved data collection.	48	--	0	0.0	Fed-Def. Mapping Agency

PROJECTS PERFORMED BY THE NAVAL OCEANOGRAPHIC OFFICE, NSTL STATION, MS
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
					FY79	FY80	FY79	FY80	
NOC 95	Instrumentation	Instrumentation Calibration Services for Meteorological Systems	Precision Measurement	Meteorological wind and direction sensors calibrated.	1	2	0.0	0.0	Ind--Production Control Systems Inc.
NOC 96	Instrumentation	Calibration for Secondary Transfer Standards for Pressure Measurements	Precision Measurement	Quick reaction for dead-weight testers.	1	1	0.0	0.0	Ind--Avondale Shipyard, New Orleans
NOC 97	Instrumentation	Repair and Calibration Services of General-Purpose Test Equipment	Standards Laboratory	Repaired and calibrated oscilloscopes, signal generators, etc.	0	0	0.0	0.0	Ind--Bay Technical Associates Inc.
NOC 98	Instrumentation	Repair and Calibration of Instruments to Monitor Nuclear Reactor Parameters	Standards Laboratory	100 items of general-purpose electronic test equipment processed. Ongoing	5	10	0.0	0.0	Ind--Louisiana Power and Light
NOC 99	Instrumentation	Repair and Calibration of Instruments to Monitor Nuclear Reactor Parameters	Standards Laboratory	110 items processed. NRC requirements must be met.	2	10	0.0	0.0	Ind--Mississippi Power and Light
NOC 100	Instrumentation	Test and Calibration Services Mechanical Standards	Precision Measurement	Mechanical standards refurbished.	1	3	0.0	0.0	Ind--N-R-S Mfg. Co.
NOC 101	Instrumentation	Repair and Calibration of Meteorological Sensors	Precision Measurement	113 sensors calibrated. Used to monitor air quality in all major cities.	8	10	0.0	0.0	Ind--NUS Corp.
NOC 102	Instrumentation	Calibration Services on Deep-Sea Reversing Thermometers	Precision Measurement	Deep-sea reversing thermometers calibrated.	0	1	0.0	0.0	State--So. Carolina Wildlife and Marine Resources Dept.
NOC 86	Marine Technology	Screening Test of Marine Wood Preservatives (3 Marine Test Sites)	Marine Biology	Panels exposed for 2 years, exposures continuing for bacter, fungi resistance tests	0	0	0.0	0.0	NP--International Research Group on Wood Preservation
NOC 91	Marine Technology	Calibration Services for Temperature-Measuring Current Meters	Precision Measurement	10 current meters calibrated using unique facility for ocean environment simulation.	0	0	0.0	0.0	Ind--U.S. Geological Survey
NOC 93	Marine Technology	Plastic Teredo-Barriers for Marine Piling--Control Marine Borers and Fungi	Marine Biology	No attack at 3 test sites. Program continuing.	0	0	0.1	--	Ind--Raychem Corp., Houston

PROJECTS PERFORMED BY THE NAVAL OCEANOGRAPHIC OFFICE, NSTL STATION, MS
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K) Man-Years			Sponsor	
					FY79	FY80	FY79	FY80	
NOC 94	Marine Technology	Instrumentation Calibration Services--Det. Salinity of Unknown Samples	Precision Measurement	Samples analyzed.	0	1	0.0	0.0	Ind--Beckman Instruments, Inc.

**PROJECTS PROPOSED BY THE NAVAL POSTGRADUATE SCHOOL, MONTEREY, CA
LISTED BY TECHNOLOGICAL AREA**

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K) Man-Years			Sponsor	
					FY79	FY80	FY79	FY80	
NPS 259	Computer Technology	City Computerized Management Information System	Computer Applications	Computerized Management information system for city of Santa Fe. Recommended new equipment and software.	--	--	--	--	State--Santa Fe, NM
NPS 257	Fire and Safety	Nondisintegrable Burn Tower, CRIP Project, IPA assignment	Construction Engineering	Tower to stand up with repeated use constructed of porous concrete blocks reinforced with steel rod.	--	--	--	--	State--Carson City, NV
NPS 254	General Assistance	Utilization of RDT&E Investment at CEC	Research Utilization	Improve utilization of product from CEC. Evaluate current system. Effective technology transfer.	28	0	0.3	--	Fed--NAVFAC
NPS 255	General Assistance	Technology Transfer Symposium on Research Utilization	Research Utilization	Technology transfer effort for the future should be one towards a pull for new technology.	5	0	0.1	--	Fed--(NAVFRACOM, NAVFAC, NPS)
NPS 256	General Assistance	Conference for the Forest Service	Research Utilization	To establish a national policy for utilization of Forest Service research results.	--	--	--	--	Fed--(U.S. Forest Service
NPS 258	Health and Medicine	Change in Asphalt Composition	Chemical Engineering, Environmental Health	New technology to eliminate use of carcinogens in asphalt.	--	--	--	--	State--Carson City, NV

PROJECTS PERFORMED BY THE NAVAL RESEARCH LABORATORY, WASHINGTON, DC
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
					FY80	FY79	FY80		
NRL 220	Analysis and Testing	Corrosion Resistance of Steel Piling	Materials Research Energy	Helped on design of foundation piling for nuclear power plant.	2	8	0.0	0.0	Fed--Nuclear Regulatory Comm.
NRL 206	Analysis and Testing	Alloy Fracture Micro-mechanisms	Microstructural Analysis	Analysis on propeller shaft failure on a commercial tanker (Coast Guard)	164	173	2.1	2.6	Fed--Off. Nav. Res.
NRL 216	Analysis and Testing	Surface Analysis of Guidance System Components	Surface Analysis Techniques	Effort to identify source of noise in slip ring assemblies. New approaches to organic film identification.	35	60	0.5	0.6	Fed--Strategic Systems Project Office
NRL 218	Analysis and Testing	Alloy Fracture Micro-mechanics (Bridge Wires)	Failure Analysis, Fracture	Determine why wires on Meana Narrows suspension bridge breaking.	164	173	2.1	2.6	Fed--Off. Nav. Res.
NRL 219	Analysis and Testing	Alloy Fracture Micro-mechanisms (Helicopter Rotor Spindle)	Failure Analysis	Remedy for Sikorsky H-3 rotor spindle fractures.	164	173	2.1	2.6	Fed--Off. Nav. Res.
NRL 222	Analysis and Testing	Welding Metallurgy	Materials Research	LED conference on laser welding for Amer. Soc. Metals.	188	197	2.7	2.8	Fed--Off. Nav. Res.
NRL 224	Analysis and Testing	Laser Processing of Materials, Improved Corrosion Resistance, Strength	Materials Research, Methodology	Industry exploring NRL's laser-spray process and laser-melting of plasma-spray coatings.	310	220	3.7	2.6	Fed--Off. Nav. Res./ DARPA
NRL 229	Analysis and Testing	Computer Program for Spectra Analysis	Materials Analysis	Computer operation speeded up with addition of fast approximation to complementary error function.	15	0	0.2	0.0	Fed--NAVAIRSYSCOM
NRL 207	Communications	Electronic Components for Expendable ECM	Electronic Countermeasures	Characterization of expendable TWRS. Cathode structures elevated. Spectrometer membrane design.	440	900	1.3	1.3	Fed--NAVECSYSCOM
NRL 210	Communications	Acousto-Optics Technology Advancement	Optic Images/ Detector	Acoustic-optic techniques for DOA and TOA. Increase in imager dynamic range, investigate crystals.	762	700	2.7	3.3	Fed--NAVECSYSCOM

PROJECTS PERFORMED BY THE NAVAL RESEARCH LABORATORY, WASHINGTON, DC
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
					FY79	FY80	FY79	FY80	
NRL 225	Communications	Sonar Ceramic Stability	Materials Research Sound Transducers	New composite concept to improve sonar sensors. Important operation/logistic advantages.	35	45	0.4	0.4	Fed--Off. Nav. Res.
NRL 230	Communications	Gyrotron Traveling Wave Amplifier	Electronics Development	Design for gyrotron travelling wave amplifier operating at second cyclotron harmonic complete.	0	0	0.0	0.0	Fed--Rome Air Development Ctr.
NRL 231	Communications	High-Power Millimeter-Wave Amplifier	Electronics Development	Computer program for calculating optimum operating parameters for gyrotron travelling wave amplifier.	0	0	0.0	0.0	Fed--Rome Air Development Ctr.
NRL 232	Communications	Millimeter-Wave Power Tube	Electronics Development	Exchange info on gyrotron. Raytheon to evaluate NRL beam collectors and tube processing.	0	0	0.0	0.0	Fed--Nav. Res. Lab.
NRL 233	Communications	Low-Bit-Rate Digital Speech	Signal Processing	Large-scale integration of speech processors. Psychoacoustic interactions.	400	400	5.0	5.0	Fed--NAVELSYS/COM
NRL 234	Communications	Microwave Scattering Patterns	Electronics Radar, Communications	Obtain model of electromagnetic scattering patterns from the ocean. Radar target classification in ocean environments.	84	90	1.6	1.4	Fed--Off. Nav. Res.
NRL 237	Communications	Sonar Transducer Reliability Improvement Program (STRIP)	Materials Research, Sonars, Transducers	Annual review attended by industry, workshops, publications.	495	495	10.0	9.5	Fed--NAVEBASIS/COM
NRL 208	Computer Technology	Computer/Processors for EW/ESM	Technological Improvements	Determining redundancy allowable in EW analysis and evaluation.	94	110	0.5	0.6	Fed--NAVAIRSYS/COM
NRL 209	Computer Technology	Automatic Radar Pattern Recognition	Data Base Management	Enhancement of signal-processing operations in ESM systems.	340	1000	1.5	3.0	Fed--NAVAIRSYS/COM

PROJECTS PERFORMED BY THE NAVAL RESEARCH LABORATORY, WASHINGTON, DC
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
					FY79	FY80	FY79	FY80	
NRL 205	Energy	National Cladding/Duct Materials Development	Microstructural Analysis, Fracture Behavior	Fracture testing of irradiated steel alloys. Phase stability under irradiation determined.	60	75	0.7	0.8	Fed--Dept. Energy
NRL 211	Energy	Monitoring of Nuclear Airborne Materials	Nuclear Chemistry	Very-high-sensitivity carbon-14 detector. Monitoring or release levels associated with fuel processing.	210	270	1.0	1.0	Fed--Dept. Energy
NRL 226	Energy	Fusion Materials Task Groups	Materials Research	Review of DOE Fusion Materials Program. Analysis of ferritic steels for fusion reactors. Stability of irradiated titaniums.	100	200	1.0	1.5	Fed--Dept. Energy
NRL 228	Energy	International Group on Cyclic Crack Growth Rate	Materials Analysis Fatigue Crack Growth Technology	Study of effects of reactor operating conditions. Committee organized, research results distributed.	250	250	3.5	3.0	Fed--Nuclear Regulatory Commission
NRL 227	Energy	Task Force on Crack Propagation Technology	Materials Research, Crack Propagation	Develop rules for implementation of crack growth methodology into ASME Boiler & Pressure Vessel Code. Begun with 316 S.S.	0	0	0.0	0.0	NP--Metal Properties Council
NRL 212	Energy	Laser Chemistry. Effects of Laser Excitation on Catalytic Reactions	Materials Research, Chemical Kinetics	Prototype system, decomposition of formic acid on platinum, produces CO and CO ₂ , studied under laser radiation.	150	150	2.0	2.0	Fed--Off. Nav. Res.
NRL 214	Energy	Hot Corrosion Prevention in Gas Turbines	Materials Research	Low-temp. hot corrosion results from reaction of SO ₃ in engine gas with oxides on blade surface. Chromium effective against this.	365	310	3.9	3.7	Fed--NAVSEASYSCOM
NRL 215	Energy	Chelant Boiler Treatment, EDTA	Materials Research	Investigating source of copper in chelant-treated boilers. On-site analytical procedure being developed.	—	—	—	—	Fed--NAVSEASYSCOM

PROJECTS PERFORMED BY THE NAVAL RESEARCH LABORATORY, WASHINGTON, DC
LISTED BY TECHNOLOGICAL AREA

Performing Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
				FY79	FY80	FY79		
NRL 223 Energy	Fabrication of New Superconductors	Materials Research	Contract awarded to demonstrate industrial production of multifilamentary V ₃ Ga wires.	155	150	2.0	2.0	Fed--NAVAIRSYS/COM
NRL 217 Fire and Safety	Workshop--Control of Shipboard Damage	Damage Control	Seek participation of industry in formulating R&D program plan for fire protection and damage control on ships.	--	--	--	--	Fed--NAVSEASYS/COM
NRL 235 General Assistance	Circuit-Riding Technology Agent in Community Technology Initiatives Program (CRIPT) (Rockville)	General Assistance	Service in local governments contributions in sewage disposal, water quality, air pollution, fire suppression, etc.	40	40	1.0	1.0	NP--National Sci. Found. (CRIP)
NRL 201 General Assistance	Electronic Materials Technology	Metallography	Method developed to grow high-purity semi-insulating gallium arsenide single crystals, industry evaluating, using.	--	--	--	--	Fed--NAVTRACOM
NRL 203 General Assistance	Ultrapurification of Gaseous Hydrogen Fluoride	Chemical Engineering	Perfected method for removal of water and most carbonaceous contamination.	0	0	0.0	0.0	Fed--Nav. Res. Lab. and Perkin Elmer
NRL 236 Health and Medicine	Ultrasonic Pressure/Intensity Levels Acceptable for Human Tissue	Acoustic Impulse Technology	Acoustic impulse from thick PZT plates has been narrowed to give an effective bandwidth of about 15 MHz.	30	10	0.3	0.1	Fed--Food and Drug Admin. Bureau of Radiobiological Health
NRL 202 Instrumentation	Semiconductor Materials Preparation for Electronics Applications	Metallurgy	Procedure for in-situ etch of III-V compound substrates prior to growth by liquid phase epitaxy of III-V layers having electronics applications.	--	--	--	--	Fed--Nav. Res. Lab.
NRL 204 Instrumentation	Controlled Porosity Dispenser Cathode Development	Microwave Tube Components	Controlled pore surface fabricated using modern microelectronic photolithography.	--	--	--	--	Fed--NAVELCSYS/COM

PROJECTS PERFORMED BY THE NAVAL RESEARCH LABORATORY, WASHINGTON, DC
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
NRL 219	Marine Technology	Ocean Thermal Energy Conversion	Mechanical Engineering	Enhance structural reliability of OTEC cold water pipe by recommending design changes.	--	--	--	--	Fed--National Oceanic and Atmospheric Admin.
NRL 221	Technological Guidance	Laser Welding	Materials Research	Extend capability of laser welding to more complex weldments variety of materials.	0	0	0.0	0.0	Fed--NAVSYSCOM
NRL 213	Transportation	High-Performance Composites and Adhesives for V/STOL Aircraft	Aerospace Materials Develop.	Predict resistance of composites and bonded points to flaw propagation.	260	0	--	--	Fed--NAVAIRSYSCOM

PROJECTS PERFORMED BY THE NAVAL SHIP WEAPON SYSTEMS ENGINEERING STATION, PORT HUENEME, CA
LISTED BY TECHNOLOGICAL AREA

<u>Performing Activity</u>	<u>Technological Area</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Progress</u>	<u>Funding (\$K)</u>			<u>Sponsor</u>
					<u>FY79</u>	<u>FY80</u>	<u>FY79</u>	
NSWSSES 108	Instrumentation	Two-Wire Telephone Data System Remote Control System to Start, Stop, Tune Receivers, Recorders	MicroProcessor Technology	Building RF assembly for antenna assembly on top a ship's mast.	1	5	0.2	Fed-NAVSYSYCOM
NSWSSES 109	Instrumentation	Improved Low-Noise Telemetry Receiver Assembled From Modular PC Assembly	MicroProcessor Technology	2 receivers completed and tested, 5 under construction.	25	25	0.5	Fed-NAVSYSYCOM
NSWSSES 110	Instrumentation	Dynamic Radio-Frequency Tester, Signal Simulates Missile in Flight	MicroProcessor Technology	2 improved dynamic testers under construction.	20	20	0.3	Fed-Navy NATO SEASPARC

PROJECTS PERFORMED BY THE NAVAL SURFACE WEAPONS CENTER, DAHLGREN, VA SILVER SPRING, MD
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)		Man-Years FY80	Sponsor
					FY79	FY80		
NSWC 115	Analysis and Testing	Position Lifetime Technique--Measuring Moisture in Composites	Composite Materials Nondestruct. Testing	Feasibility demonstrated for several polyimide resins.	10	10	0.1	Fed--NASA Langley Research Ctr.
NSWC 120	Analysis and Testing	Underwater Tank Tests Using Unique Facilities	Hydroballistics	Test services provided for Navy and industry.	70	70	1.0	Fed. and Ind.
NSWC 111	Computer Technology	Cross-Tie Memory, High-Density, Nonvolatile	Thin-Film Memory	Transferred to industry, which is further developing.	300	220	3.2	Fed--NAVSYS/COM
NSWC 112	Energy	NITINOL Heat Engines--Convert Low-Grade Thermal Energy to Useful Mech. or Elec. Energy	Thermodynamics	Prototype engines being evaluated. Specialized NITINOL commercially available.	75	0	1.0	Fed--Dept. Energy
NSWC 119	Energy	RNS Explosive Evaluation Hexanitrostilbene	Explosives Synthesis	Evaluating process to synthesize; analytical procedures for assay of purity.	52	65	0.7	0.5 Fed--NASA Lyndon B. Johnson Space Center
NSWC 117	Fire and Safety	Reactor Safety Studies, Hydrodynamic Loads from Accidents	Safety Engineering Hydrodynamic and Structural Comput.	Services provided as NRC requests, e.g., Three Mile Island, Clinch River	16	5	0.3	0.1 Fed--Nuclear Regulatory Commission
NSWC 114	Law Enforcement	Self-Powered Vehicle Detector, Detects Vehicles on Any Roadway	Magnetic Sensors; Surveillance Technology	20 system built and now being evaluated. Potential for traffic control.	50	0	1.0	0.0 Fed--DOT Fed. Highway Admin.
NSWC 113	Transportation	DOT-STAR System for Train Accident Reduction	Sensors; Materials	Thermal sensors and rail-contact sensors being evaluated.	250	120	2.0	2.0 Fed--DOT Fed. RR Admin.
NSWC 116	Transportation	Hazardous Material Packaging, Develop Performance Standards	Container and Packaging	Test requirements for drums and pails developed.	6	12	0.2	0.4 Fed--DOT Off. Hazardous Material
NSWC 118	Transportation	Structural Separation System Explosive-Actuated, for Space Shuttle	Explosives Technology	Explosive cartridge designed, developed and delivered to NASA.	9	5	0.1	0.1 Fed--NASA Lyndon B. Johnson Space Center
NSWC 121	Transportation	Space Shuttle Destruct System; Destruct Linear Shaped Charges	Explosives Technology	Assessing effectiveness of charges under re-entry thermal conditions.	32	35	0.5	0.5 Fed--NASA George C. Marshall Space Flight Center

PRECEDING PAGE BLANK-NOT FILMED

PROJECTS PERFORMED BY THE NAVAL TRAINING EQUIPMENT CENTER, ORLANDO, FL
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
NTBC 123	Communications	Extremely Wide Angle Visual Displays	Visual Systems, Visual Simulation	Could have impact on visual system throughout aviation community	200	--	4.0	--	Fed--NAVMATCOM
NTBC 122	Computer Technology	Application of Voice Technology in Automated Systems	Voice Technology	Speech technology to replace keyboard data for flight plan amendments.	225	225	4.5	4.5	Fed--NAVATCOM
NTBC 124	Technological Guidance	NTBC/Industry Conference; Mil., C.S., Indus Acad. and Foreign; First Conf in 66	Training Methodology	Interservice conference continuing. Proceedings published (NAVTRAEEQUIPCEN IH-306).	--	--	--	--	Fed--NTBEC

PROJECTS PERFORMED BY THE NAVAL UNDERWATER SYSTEMS CENTER, NEW LONDON, CT
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years	Sponsor
					FY79	FY80	FY79		
NUSC 132	Communications	Improve Information Retrieval Capabilities, New Methods of Communication	Computer Technology	Training on Electronic Information Exchange System (EIES) as nucleus of a national innovation network.	--	--	--	--	NP--R.I. League of Cities and Towns, New England Innovation Group, Fed. Lab. Consortium
NUSC 125	Energy	Technical Energy Specialist (IPA) -- Scientific Consultant for Energy Extension Service	Heating, Engineering	Technical energy briefs in response to specific needs.	--	--	--	--	NP--NUSC/Univ. Conn.
NUSC 129	Energy	Energy Conservation in Public Buildings More Efficient Lighting, Heating, Education-- All U.S.	Lighting, Heating, Audiovisual Lab.	Prepared Lighting Efficiency Program, Thermal Efficiency Program underway.	--	--	--	--	Federal
NUSC 126	Technological Guidance	Technological Information Source--Assigned as Staff Scientist	Computer Technology, Info Retrieval	Assisted in preparation of legislation, issued technical reports, developed software.	--	--	--	--	State--Connecticut General Assembly
NUSC 127	Technological Guidance	Community Technology Initiatives Program-- Circuit-Riding Technology Experts Small-City Needs	Communications, Management Methods	In past year over 100 problems solved on variety of needs.	33	--	--	--	NP--CTIP
NUSC 128	Technological Guidance	Technological Utilization Assistance Program to Help Identify and Solve Municipal Problems	Communication, Instrumentation, Management, etc.	Brings resources from industry, federal, and university research to solve municipal problems. Throughout Connecticut, 107 cities and towns of all sizes have been provided service in 250 individual cages, in 2 years.	--	--	--	--	State--Connecticut Conference of Municipalities

PROJECTS PERFORMED BY THE NAVAL UNDERWATER SYSTEMS CENTER, NEW LONDON, CT
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY79	Sponsor
					FY780	FY79	FY80		
NUSC 130	Technological Guidance	CTIP---32 Cities and Counties Under 50,000 in Population	Computer Circuit Rider Technology Agent	Gathering and disseminating scientific and technological information to local governments. Responds to specific problems from local govts.	--	--	--	--	NP--NUSC New England Innovation Group and Public Technology, Inc.
NUSC 131	Technological Guidance	Technical Volunteer Service; to Solve Problems of Local Governments; 200 Participants; First Project Nationwide	Varied, Electronic, Computer Medical, Engineering, etc.	100 separate projects accomplished--acoustics, all emergency, water quality, inventory control, toxicology, heart pacemakers, etc.	--	--	--	--	State--NUSC (fed, state, local)

PROJECTS PERFORMED BY THE NAVAL WEAPONS CENTER, CHINA LAKE, CA
LISTED BY TECHNOLOGICAL AREA

Performing Technology Activity	Cat Area	Project Description	Navy Technology Applied	Progress	Funding (\$K) FY79	FY80	FY79	FY80	Man-Years	Sponsor
NWC 135	Analysis and Testing	Fire/Ballistic Tests of Composites: Fibers Released From Graphite-Epoxy Composites	Aeronautics	Prepared test site and collection tunnel.	35	30	0.3	0.3	0.3	Fed--NASA Ames Research Center
NWC 136	Analysis and Testing	Drop Tank Test--Part of Navy Acceptance	Aeronautics	Fuel fire and fuel vapor ignition tests.	33	0	0.1	0.0	0.0	Ind--Royal Industries, Inc.
NWC 138	Analysis and Testing	To Quantify Hazards with Large Spills of LNS and LPG, Spill Facility Completed	Atmospheric Physics, Safety and Chemical Engineering	Burning behavior, detonation tests, vapor dispersion, concentration.	141	100	1.0	0.8	0.8	Fed--Dept. Trans.
NWC 139	Analysis and Testing	Ammonia Spill Tests; Extent of Hazard	Atmospheric Physics, Safety and Chemical Engineering	Nondispersive spectrophotometer evaluated for determining ammonia concentration. New data acquisition system being specified.	225	417	1.3	1.7	1.7	Fed--Dept. Trans.
NWC 140	Analysis and Testing	Spill Tests--ING and LPG; Design Facility Testing	Atmospheric Physics, Safety and Chemical Engineering	Contractor bidding on 40-cum facility. Vapor concentration studies.	787	378	2.1	2.5	2.5	Fed--Dept. Energy
NWC 141	Analysis and Testing	Maverick Booster Testing for Explosive Technology Inc.	Explosives/Propellants	Test boosters at impact shock levels predicted for warhead.	14	0	0.1	0.0	0.0	Ind--Explosive Technology Inc.
NWC 143	Analysis and Testing	Physics of Crystalline Surfaces to Produce Better Thin-Film Devices	Solid-State Physics	Mechanism of formation of epitaxial films and nature of "clean" crystal surfaces. Publications.	15	16	0.2	0.2	0.2	Fed--NASA Ames Research Center
NWC 144	Analysis and Testing	Optical Evaluation of Typical FLIR Spherical Mirror; To Measure Scattering	Optics	Mirror polished, coated, and measured. Continuing.	0	0	0.0	0.0	0.0	Ind--Hughes Aircraft
NWC 145	Analysis and Testing	Mirror Surface Characterization for Large Optics	Optics	Surface quality evaluation in processing of advanced optical materials.	11	0	0.2	0.0	0.0	Ind--General Dynamics Convair

PROJECTS PERFORMED BY THE NAVAL WEAPONS CENTER, CHINA LAKE, CA
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technologi- cal Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
NWC 146	Analysis and Testing	Intrinsic Damage Threshold Study--Study Laser Damage Phenomena	Optics	Goal--Multilayer coatings with increased damage resistance. Significant progress in film production, etc.	130	130	1.0	1.0	Fed--Dept. Energy
NWC 147	Analysis and Testing	Preparation and Characterization of Amorphous Silicon--More Efficient Solar Cells	Optics	Develop techniques useful in manufacture.	59	141	0.6	1.6	Fed--Dept. Energy Research Inst.
NWC 151	Analysis and Testing	Synthesis Studies--Employ New Oxidant Peroxydisulfuric Acid in Synthesis of New Compounds	Organic Chemistry	1,2,2,5-Tetranitrobenzene and Pentanitrobenzene synthesized.	70	0	1.0	0.0	Fed--Dept. Energy Lawrence Livermore Lab.
NWC 152	Analysis and Testing	Surveillance; ROCOZ Optical Components--For Rocket-Borne Ozonesonde ROCOZ	Atmospheric Physics	Spectrophotometric calibrations and requisite calculations of effective ozone absorption coefficients. Aging characteristics of interference filters.	37	50	0.5	0.6	Fed--NASA Goddard Space Flight Ctr.
NWC 153	Analysis and Testing	Develop New Procedure to Synthesize TAB	Organic Chemistry	1,3,5-Triamino-2,4,5-Trinitrobenzene.	100	100	1.4	1.4	Fed--Dept. Energy Los Alamos Scien. Lab.
NWC 154	Analysis and Testing	Establish Combustion Instability Characteristics for Space Shuttle Solid Rocket Motor	Propellants	Combustion stability of igniter propellants. Thrust perturbations of booster motor.	37	38	0.3	0.3	Fed--NASA
NWC 156	Analysis and Testing	CADM Submunitions Program To Perforate 8-Inch Triple-Reinforced Concrete	Explosives and Aeronautics	Perforation measurements. Ability of submunition fins to stabilize.	58	0	0.1	0.0	Ind--Aerojet Ordnance and Mfg. Co.
NWC 157	Analysis and Testing	Vought Free-Flight Rocket Track Test--Dispersion of Subpacks, Munitions Released in Free-Flight	Explosives and Aeronautics	High-speed track test conducted.	111	0	0.1	0.0	Ind--Vought Helicopter Inc.
NWC 158	Analysis and Testing	Firestone F-18 Fuel Tank Test--Structural Information on Takeoff and Landing	Aeronautics	Good results from 6 data runs.	72	0	0.1	0.0	Ind--Firestone Coated Fabrics Co. Inc.

PROJECTS PERFORMED BY THE NAVAL WEAPONS CENTER, CHINA LAKE, CA
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K) Man-Years			Sponsor	
					FY79	FY80	FY79	FY80	
NWC 159	Analysis and Testing	Martin-Marietta Submissile Explosives and Dispersion Test; Dynamic Track Test	Aeronautics	Dynamic track test for submissile dispersion and flight characteristics.	60	0	0.2	0.0	Ind--Martin-Marietta Aerospace
NWC 160	Analysis and Testing	Assault Breaker, Verify Aerodynamics of Submunitions	Aerodynamics	Cost estimate and test plan prepared.	20	0	0.0	0.0	Ind--Hughes Aircraft
NWC 162	Analysis and Testing	NASA Galileo Probe; Verify Structural Integrity, etc., of Parachutes	Aeronautics	High-speed drop test vehicles being modified. Test instrumentation being designed or procured.	123	0	1.5	0.0	Fed--NASA Ames Research Center
NWC 163	Analysis and Testing	Automatic Deployed Survival Kit	Escape Systems	Will be demonstrated for installation into T-2 aircraft on Japanese Air Self-Defense Force.	13	0	0.0	0.0	Ind-American Safety Flight System
NWC 133	Energy	Conversion of Solid Waste to Polymer Gasoline	Chemical Engineering	Pyrolysis gas purification subsystems greatly improved, some gasoline produced from organics derived from trash.	46	0	0.4	0.0	Fed--EPA Environmental Research Center
NWC 134	Energy	OGO Geothermal—Support Joint USA-DOE Drilling Program, Geothermal Reservoir Parameters	Geology and Mineralogy	Testing under way to determine parameters, were productivity.	27	0	0.1	0.0	Fed--Dept. Energy Nevada Oper. Off.
NWC 137	Energy	Research into Pyrolysis of Pure Cellulose and Pure Lignin Powder; Toward Making Petrochem.	Chemical Engineering	Use China Lake entrained flow pyrolysis reactor	25	0	0.2	0.0	Fed--Dept. Energy Solar Energy Research Institute
NWC 148	Environment	Silver Iodide Pyrotechnic Flares—Interaction of Nucleants With the Atmosphere	Inorganic Chemistry	Accumulation of pyrotechnic formulations can be reworked into use in operational programs.	0	0	0.0	0.0	State--Santa Barbara County
NWC 149	Environment	Inadvertent Weather Modification from Shuttle Launches	Atmospheric Physics	Characterize aluminum oxide aerosols. Stabilized ground clouds from Kennedy Space Center measured.	55	0	0.2	0.0	Fed--NASA

PROJECTS PERFORMED BY THE NAVAL WEAPONS CENTER, CHINA LAKE, CA
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
				FY79	FY80	FY79		
NWC 150	Environment Western Kansas Ground Water Study--Provide Consulting Services	Atmospheric Physics	Advise on pyrotechnic capability.	18	0	0.2	0.0	State--Western Kansas Ground Water Dist. #1
NWC 161	Environment Technical Support in Installation of Airborne Research Data System and Other Research Systems	Atmospheric Physics	Provided support to APL as requested.	15	0	0.0	0.0	NP--Johns Hopkins Univ.
NWC 142	General Assistance Operation of the Federal Laboratory Consortium for Technology Transfer	Technology Transfer	Spring meeting held, Fall meeting planned. Workshops, seminars, newsletter.	182	220	0.5	0.5	Fed--National Science Found.
NWC 164	General Assistance Federal Laboratory Consortium for Technology Transfer--Santa Fe, Oct 78 and NBS May 79	Technology Transfer	Semiannual meetings, executive committee meetings.	0	0	0.0	0.0	Fed--Independent Research and Development/Technology Utilization (IRED/TU) Office
NWC 165	General Assistance Technology Transfer Exhibit Energy Fair, State and Local Government	Technology Transfer	Pairs in LA, Hartford, supply state and local with info on NWC.	0	0	0.0	0.0	Fed--IRED/TU Office
NWC 155	Health and Medicine Automatic Tissue Culture Colony Counter	Optics	Improved second version of cell colony monitor. Consists of optics mechanical reticle and sample drive, electronics.	14	0	0.2	0.0	Fed--Dept. Health Education, and Welfare

PROJECTS PERFORMED BY THE NAVAL WEAPONS SUPPORT CENTER, CRANE, IN
LISTED BY TECHNOLOGICAL AREA

Performing Activity	Technological Area	Project Description	Navy Technology Applied	Progress	Funding (\$K)			Man-Years FY80	Sponsor
					FY79	FY80	FY79		
NWSC 167	Communications	Submarine Signal Fuze for launching Markers underwater.	Instrumentation	Uses seawater battery, activated in 6-8 ft water.	--	--	--	--	Fed--NAVSSEASYSCOM
NWSC 166	Environment	Method for Disposing of Red Phosphorus Composition from Markers, Signals	Chemical Engineering	Incineration complex combined in the breakdown machines to make Pilot Plant. Operation proved technical soundness and feasibility environment acceptability.	--	--	--	--	Fed--NAVSSEASYSCOM

PROJECTS PERFORMED BY THE NAVY PERSONNEL RESEARCH AND DEVELOPMENT CENTER, SAN DIEGO, CA
LISTED BY TECHNOLOGICAL AREA

<u>Performing Activity</u>	<u>Technological Area</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Progress</u>	<u>Funding (\$K) Man-Years</u>			<u>Sponsor</u>
					<u>FY79</u>	<u>FY80</u>	<u>FY80</u>	
NPRDC 169	Energy	Energy Link: Catalog of Assistance Sources in Fed Consortium	Data Gathering and Analysis	Energy Link Catalog based on needs of cities and counties. Being edited for printing.	--	30	--	Fed--Fed. Lab. Consortium
NPRDC 168	Technological Guidance	San Diego Technology Action Center (SANDTAC) Action-Oriented Utilization Program--IPA	Support of Local Govt.	Cost saving of \$200K per year. Strong and fully responsive city-wide technical support.	60	60	2.0	State--City and County of San Diego, National Science Found., Fed. Lab. Consortium
NPRDC 170	Technological Guidance	Local Government Assistance Task Force	Local Government San Diego	New needs caused by Proposition 13. Couple local needs with laboratory expertise.	--	--	--	Fed--Fed. Lab. Consortium

PROJECTS PERFORMED BY THE OFFICE OF NAVAL RESEARCH, WASHINGTON, DC
LISTED BY TECHNOLOGICAL AREA

Performing Technological Activity	Project Description	Navy Technology Applied	Progress	Funding (\$K) Man-Years			Sponsor	
				FY79	FY80	FY79	FY80	
ONR 245	Analysis and Testing	Theory of Fault Diagnosis in Linear Systems	Electronic Engineering	Established a measure of testability and an efficient algorithm for solving the fault diagnosis equation.	15	--	0.1	-- Fed-Off. Nav. Res.
ONR 244	Communications	Conducting Polymers Based on Polyacetylene or (CH)x	Polymer Chemistry	Rapid transfer to industry. Promise of economical plastic solar cells—a new option in solving energy crises.	120	120	2.0	2.0 Fed-Off. Nav. Res.
ONR 247	Communications	Ohmic Contacts in Gallium Arsenide	Electronic Engineering Electromagnetics	Published how to improve metallic-ohmic contacts to gallium arsenide devices.	0	0	0.0	0.0 Fed-Off. Nav. Res.
ONR 248	Communications	Gold-Germanium Refractory Contacts	Electronic Engineering	Provided how to improve production yield and performance of gallium arsenide microwave devices.	20	0	0.2	0.0 Fed-Off. Nav. Res.
ONR 246	Computer Technology	Nonlinear Controllability	Theoretical Math	Complete solution to the controllability problem for a large class of nonlinear systems.	24	15	0.2	0.2 Fed-Off. Nav. Res.
ONR 249	Computer Technology	Data Base Machine	Electronic Engineering	New computer organization customized to perform data storage and retrieval. Order-of-magnitude increase in speed, more easily programmed.	60	60	1.1	1.1 Fed-Off. Nav. Res.
ONR 250	Computer Technology	Personalized Graphics Systems for Automated Maintenance	Human Factors Engineering	Computer-edited made-to-order movie to give expert consultation on repair problems. Reflects viewer's knowledge.	120	170	2.0	3.0 Fed-Off. Nav. Res.

PROJECTS PERFORMED BY THE OFFICE OF NAVAL RESEARCH, WASHINGTON, DC
LISTED BY TECHNOLOGICAL AREA

<u>Performing Technology Area</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Progress</u>	<u>Funding (\$K) FY79</u>	<u>Man-Years FY79</u>	<u>Funding (\$K) FY80</u>	<u>Man-Years FY80</u>	<u>Sponsor</u>
ONR 242 Energy	Fuel-Water Emulsification	Chemical Engineering	Application of fuel-water emulsions to diesel engines and boilers. Reduced fuel consumption and improved performance.	55	-- 1.0	--	-- Fed-Off. Nav. Res.	
ONR 243 Energy	Rechargeable Lithium Batteries	Basic Research	Battery based on organic electrolyte containing cyclic ethers. Evaluation for Navy, commercial use.	70	200 1.5	5.0	Red-Off. Nav. Res.	
ONR 241 Environment	Shipboard Solid and Liquid Chemical Waste Storage and Transfer Engineering, Pollution Abatement		Elimination of waste discharge from Navy vessels. Holding tank systems for all craft.	55	-- 1.0	--	-- Fed-Off. Nav. Res.	
ONR 253 Environment	3-D Water Flowmeter	Electrical Engineering	Acoustic current meter upgraded performance of new sewage treatment plant.	0	0 0.0	0.0	Red-Off. Nav. Res.	
ONR 252 Fire and Safety	Fire Drill for Water from Ice	Electrical Engineering	Electrically powered thermal drill for penetrating Arctic ice effective for winter firefighting.	100	100 1.0	1.0	Red-Off. Nav. Res.	
ONR 240 Marine Technology	Hydraulic Transmission for Ship Propulsion	Ship Propulsion, Naval Architecture	Seawater as motive fluid, axial turbine provides thrust to propeller. Substantial reductions in weight and space.	45	-- 1.0	--	-- Fed-Off. Nav. Res.	
ONR 251 Transportation	Propagation of Acoustic Energy in the Arctic	Computer Technology	Computer program will compute propagation loss as a function of range and depth as well as pulse shapes. Will accommodate rough boundaries between fluid interfaces.	150	208 3.0	4.0	Red-Off. Nav. Res.	

PROJECTS PERFORMED BY THE U.S. NAVAL ACADEMY, ANNAPOLIS, MD
LISTED BY TECHNOLOGICAL AREA

<u>Performing Activity</u>	<u>Technological Area</u>	<u>Project Description</u>	<u>Navy Technology Applied</u>	<u>Progress</u>	<u>Funding (\$K)</u>			<u>Sponsor</u>
					<u>FY79</u>	<u>FY80</u>	<u>FY80</u>	
USNA 172	General Assistance	Enrichment Program for Gifted School Children--Extend Education	Math., Physical Science, Comp. Sci.	7 minicourses were taught. FY 80 will concentrate on math and computer science.	20	21	0.3	0.3 State--Anne Arundel County Schools
USNA 171	Marine Technology	European Dredging: A Review of the State of Art; to Improve Slip Maintenance by Navy	Sedimentation Control, Dredging	Attended conferences, visited experts, made site reviews, prepared report.	18	0	0.3	0.0 Fed--NavyFAC and Off. Nav. Res.
USNA 173	Marine Technology	Studies of Whales in Iceland and Their Management; Predict Arrival to Denmark Straits	Oceanography	Icelandic whaling operations observed, and film made.	3	0	0.1	0.0 Fed--Nat'l. Oceanic and Atmospheric Admin.

SECTION 5
TABLE OF CONTENTS

	<u>Pages</u>
Inventions and Patents, Analysis and Testing	5-2
Inventions and Patents, Communications	5-2
Inventions and Patents, Computer Technology	5-3
Inventions and Patents, Energy	5-3--5-6
Inventions and Patents, Environment	5-6
Inventions and Patents, General Assistance	5-6
Inventions and Patents, Health and Medicine	5-7
Inventions and Patents, Instrumentation	5-7--5-8
Inventions and Patents, Marine Technology	5-8--5-9
Inventions and Patents, Transportation	5-9

SECTION 5

FY 1979

INVENTIONS AND PATENTS

<u>Technological Area</u>	<u>Performing Activity</u>	<u>Invention/Patent</u>	<u>Purpose</u>	<u>Potential Commercial Application</u>
Analysis and Testing	CEL	Navy Case 62,357	Seafloor corer	License--device to obtain high quality seafloor sediment cores 100 ft or greater
Analysis and Testing	DST	Pat. 4,140,991 Underwater displacement probe	Measure movements of test model in water	Underwater model testing
Analysis and Testing	NMC	Navy Case 62,804 Adiabatic Laser Calorimeter	To measure absorptance of laser energy by a body	Testing and analysis
Communications	MIT	P. O. Serial 860586 "Cryptographic Systems and Method" Invention	New techniques for data encryption, authentications, and verification	Excellent
Communications	NORDA	Pat. 4,163,205 Acousto-Optical Device	To remove bubble pulse from reflected sonar signals	Underwater communications
Communications	NRSC	Pat. 4,164,186 Submarine Signal Fuze	Signal to be released underwater that releases warheads for communication of the surface	Divers, Underwater Rescue
Communications	NMC	Navy Case 62,853 Phase Controlled Shuttering System	To synchronize the shutter of a motion picture camera with the vertical retrace of a TV raster	Stop-motion or slow-motion presentations
Communications	NOSC	Pat. 4,160,169 Navy Case 61,031	Parallel scanning system	Excellent--to scan microfiche
Communications	NRL	Navy Case 61,369	Laser-pulse annealing technique for improving the detectivity of infrared photocconductors	Good
Communications	NRL	Navy Case 61,436	Optical fiber-to-fiber couplers	Good
Communications	NRL	Navy Case 63,423	V-Ga-Ti filament/ Cu-Ga-Al Matrix superconducting wires	Excellent

SECTION 5

FY 1979

INVENTIONS AND PATENTS

<u>Technological Area</u>	<u>Performing Activity</u>	<u>Invention/Patent</u>	<u>Purpose</u>	<u>Potential Commercial Application</u>
Computer Technology	NSWC	Pat. 4,133,044 Failure-Resistant Pseudononvolatile Memory	To prevent loss of data stored in a shift register on occurrence of transients and power failure	Shift register users
Computer Technology	NOSC	Pat. 4,125,316 Navy Case 58,956	Integrated optical matrix multiplier	Excellent
Computer Technology	NOSC	Pat. 4,100,541 Navy Case 59,430	High-speed manchester encoder	Excellent
Computer Technology	NOSC	Pat. 4,118,709 Navy Case 59,323	Digital-to-graphic character generator	Excellent, graphically represents characters encoded in a digital signal.
Computer Technology	NRL	Navy Case 63,341	Low barrier height epitaxial GeGaN mixer diode	Good
Energy	CEL	Pat. 4,123,697	High-voltage generator	Good--utilizes generation of electrostatic charges on moving oil
Energy	CEL	Pat. 4,134,426	Seawater motor	Good--commutating or distributing valve for timing and distributing high-pressure seawater to a number of individual pistons
Energy	CEL	Pat. 4,135,116	Constant illumination control system	Excellent--constant illumination level control for continuously adjusting the level of artificial illumination in an area of controlled lighting to complement available natural illumination
Energy	CEL	Pat. 4,136,672	Solar energy collector	Good--collects solar radiation in form of heat and transfer it to a working fluid.
Energy	CEL	Pat. 4,137,098	Solar energy window	Good--energy absorbing venetian blind type device for generating electricity providing heat, and sun shade
Energy	CEL	Navy Case 62,065	Solar still using seawater	Excellent--code seawater is fed into bottom by a pipe perforated along horizontal length.

SECTION 5

FY 1979

INVENTIONS AND PATENTS

<u>Technological Area</u>	<u>Performing Activity</u>	<u>Invention/Patent</u>	<u>Purpose</u>	<u>Potential Commercial Application</u>
Energy	CEL	Navy Case 62,926	Active high-power band-pass filter	Fair--active circuit power line filter that provides superior filtering performance against power line anomalies and interference signals
Energy	CEL	Navy Case 64,177	Diver heater	Good--heat source for use in connection with a diver heater
Energy	CEL	Navy Case 64,178	Supercorroding alloys	Excellent--operate like galvanic cells and react rapidly and predictably with seawater to produce heat and hydrogen gas
Energy	CEL	Navy Case 62,664	Sun tracker	Fair--used to maximize energy conversion
Energy	CEL	Navy Case 63,306	Oil coalescer	License--separates and removes oil and particulate solids from a dispersion oil and particulate solids in water or a water-based liquid
Energy	NSWSES	Navy Case 61,536	Remote monitoring of lead-acid battery parameters	Fleets of vehicles
Energy	NSWSES	AC Battery Monitor System for Electrolyte Level and Temperature	Remote monitoring of lead-acid battery parameters	Fleets of vehicles
Energy	NSWSES	Navy Case 63,625	To increase energy output per unit weight of electrochemical cells that use a molten lithium anode	Molten lithium-chlorine gas electrochemical batteries
Energy	NSWC	Pat. 4,162,352 Battery with Boron Lithium Alloy Anode	Battery separator membranes resistant to oxidation and corrosion but with low electrical resistance	Alkaline electrolyte batteries
Energy	NSWC	Pat. 4,158,649 Polymeric Membranes Which Contain Polyphenylquinoxalines and which are used as battery separators		

SECTION 5

FY 1979

INVENTIONS AND PATENTS

<u>Technological Area</u>	<u>Performing Activity</u>	<u>Invention/Patent</u>	<u>Purpose</u>	<u>Potential Commercial Application</u>
Energy	NSWC	Navy Case 62,989 Mass-Transport Separator for Alkaline Nickel-Zinc Cells	To increase operating life of nickel-zinc electrochemical cells	Alkaline nickel-zinc rechargeable electrochemical cells
Energy	NSWC	Pat. 4,084,047 Stable Alkaline Zinc Electrode	To increase operating life of alkaline electrochemical cells which use zinc anodes	Variety of alkaline cells
Energy	NMRF	Navy Case 63,814 Hydrogen and Water Getter	To use in sealed, oxygen-containing environments with batteries	
Energy	NMRF	Navy Case 63,815 Hydrogen and Water Getter	To use in sealed environments containing batteries and little or no oxygen	
Energy	NDSC	Pat. 4,166,884 Navy Case 62,235	Position insensitive battery	Excellent--to obtain full utilization of lithium thionyl chloride battery
Energy	NRL	Navy Case 62,396	Cis-trans fluoropolyol polyacrylate polymer	Good
Energy	NRL	Navy Case 62,397	Alkanediimide-linked polyphthalocyanines coordinated with SnCl_2	Excellent
Energy	NRL	Navy Case 63,502	Synthesis of Bis (3,4-dicyanophenoxy)-1,3-benzene-----	Excellent
Energy	NRL	Navy Case 63,050	Dicyanophenyl-bisphenol synthesis of polyphthalocyanine	Excellent
Energy	NRL	Navy Case 63,481	Fluorinated polyether network polymers	Excellent
Energy	NRL	Navy Case 63,501	Synthesis of . . . a phthalonitrile monomer . . .	Excellent
Energy	NRL	Navy Case 63,049	Dicyanophenoxy Synthesis of polyphthalocyanine	Excellent

SECTION 5

FY 1979

INVENTIONS AND PATENTS

Technological Area	Performing Activity	Invention/Patent	Purpose	Potential Commercial Application
Energy	NRL	Navy Case 63,284	Polyphthalocyanine from (3,4-dicyanophenyl-bisphenol) phthalonitrile	Excellent
Environment	CEL	Pat. 4,156,648	Water cleaner	Good--Methods and apparatus for treating water/waste water to remove grit, suspended and colloidal solids of organic and inorganic nature
Environment	DWT	Pat. 4,130,446 Antifouling Coating for Aluminum Structures	Aluminum objects designed to be buried, submerged	Marine craft and pipelines--to reduce drag produced by the attachment of barnacles and other organisms
Environment	NADC	Pat. 4,101,497 Sealer-Primer Coating	Sealant-primer coating	License granted to advanced coatings and chemicals
Environment	NADC	Pat. 3,993,510 Trioxotropic Chemical Conversion Material for Corrosion Protection of Aluminum and Aluminum Alloys	MIL-C-81706, Class IA form N&V	License granted to ANCIM Products Inc.
Environment	NADC	Pat. 4,157,991 Corrosion-Preventive Composition	Coating for metal surfaces	License granted to Bulk Chemical Distributors, Inc.
Environment	NSWC	Pat. 4,126,732 Surface Passivation of IV-VI Semiconductors with AS_2S_3	To protect epitaxial films of lead chalcogenide from oxygen in air	Protection of semiconductors, etc., from air
Environment	MSC	Pat. 4,163,682 Method for Disposing of Red Phosphorus Composition	To reclaim phosphoric acid from disposal of marine location markers	Limited--method for disposing pyrotechnic composition
General Assistance	NSWC	Pat. 4,125,725 Phenylated Carbonylquinonoxalines	To provide strong low void adhesive joints	Fabrication

SECTION 5

FY 1979

INVENTIONS AND PATENTS

<u>Technological Area</u>	<u>Performing Activity</u>	<u>Invention/Patent</u>	<u>Purpose</u>	<u>Potential Commercial Application</u>
Health and Medicine	NADC	Pat. 4,151,808 Novel Prostaglandin Derivatives	To protect heart against cardiac insults	Medical
Health and Medicine	NADC	Navy Case 63,137 Method of Preparing Prostaglandin B ₁ Derivatives	Improved method	Medical
Health and Medicine	NSWC	Navy Case 63,872 Immunochemical Analysis for Asbestos	To identify asbestos in air, water, or other environment including blood of humans	Identification of asbestos
Instrumentation	CEL	Pat. 4,156,842	Impedance meter	Excellent--measures transfer impedances, impedance and admittance of a linear electrical network having one or more ports
Instrumentation	CEL	Navy Case 62,786	Corona rings	Good--rings fabricated by a dielectric material rather than metal
Instrumentation	DWT	Pat. 4,129,087 Combination Pursuit and Compensation Display System	Provides operator of a machine control system with computational capability of an automatic control system	Control Systems for submarines, aerospace vehicles, and industrial equipment
Instrumentation	DWT	Pat. 4,156,155 Combined Rotary Electrical Contact and Shaft Seal System	To provide new liquid-metal rotary electrical-contact system	Generators, motors, and other horizontally mounted rotating machines
Instrumentation	DWT	Pat. 4,163,135 High-Current Switches Using Multi-Louvered Contact Strips	Small, compact, reliable, does not require water or oil cooling system	High-current (10,000-100,000 A) low-voltage (30-300 V) switching applications
Instrumentation	NSWC	Pat. 4,156,286 Solid State Data Recorder	Low-power, high-performance, accurate rugged analog data recorder	Rocketry, geology, aircraft and industry

SECTION 5

FY 1979

INVENTIONS AND PATENTS

<u>Technological Area</u>	<u>Performing Activity</u>	<u>Invention/Patent</u>	<u>Purpose</u>	<u>Potential Commercial Application</u>
Instrumentation	NOSC	4,117,967 Navy Case 60,034	Solder extractor apparatus--to repair microelectric circuitry	Excellent
Instrumentation	NOSC	4,117,588 Navy Case 61,234	Method of manufacturing three-dimensional integrated circuits	Excellent
Instrumentation	NOSC	4,147,942	Fast recovery one-shot for generation of trigger pulses	Excellent
Instrumentation	NOSC	Navy Case 60,779	Method and article of manufacturing an optical fiber connector	Excellent
Instrumentation	NOSC	Navy Case 61,505	Commutating narrow-band filter	Excellent
Instrumentation	NOSC	Navy Case 62,047	Method of LED manufacture	Excellent
Instrumentation	NOSC	Navy Case 63,221	Rat-race mixer with improved intermediate-frequency extractor	Excellent
Instrumentation	NOSC	Navy Case 63,754	Three-dimensional integrated circuits	Excellent
Instrumentation	NOSC	Pat. 4,138,615 Navy Case 59,541	Presettable integrating timing circuits	Excellent--to maintain vehicle speed below a level
Instrumentation	NOSC	Pat. 4,144,530 Navy Case 62,217	Combined intrusion sensor line	Excellent--security against intrusion into homes, plants
Marine Technology	CEL	Pat. 4,165,707	Deadweight anchor	Good--eliminates skating during free-fall
Marine Technology	CEL	Pat. 4,168,729	Underwater piling cutter	Excellent--self-gripping scissors-type shear cutting device for pile cutting
Marine Technology	DWT	Pat. 4,152,392 Chemical Cannister	To hold chemical to react with seawater to produce buoyant gas to supply to inflatable balloon	Underwater suspension systems

SECTION 5

FY 1979

INVENTIONS AND PATENTS

<u>Technological Area</u>	<u>Performing Activity</u>	<u>Invention/Patent</u>	<u>Purpose</u>	<u>Potential Commercial Application</u>
Marine Technology	NORDA	Invention Disclosures for Linear Acoustic Array, Flexible Thermal Array, Buoy Anchoring System, Condition-Responsive Cable	To support development of acoustic array in support of ocean measurement programs	Marine cabling anchoring
Marine Technology	NOSC	Pat. 4,143,400 Navy Case 58,762	Real-time optical mapping system	Excellent--to view underwater life, objects
Marine Technology	NOSC	Pat. 4,136,725 Navy Case 59,459	Motion compensating liquid holding tank	Excellent--small swimming pools
Transportation	CEL	Pat. 4,143,440	Causeway connector	Fair--pin connection system supporting a causeway section from a pipe piling
Transportation	CEL	Navy Case 61,552	Connector receiver for pontoon causeways	Fair--causeway bridge receiver equipped with a two-sided guillotine locking mechanism
Transportation	CEL	Navy Case 62,783	Safety hook for elevated causeway	Fair
Transportation	CEL	Navy Case 62,758	Buoy linkage	Good--allows most components to be over the side rather than on deck
Transportation	CEL	Navy Case 62,784	Breakaway pin release	Fair--releases a winch drum of a similar device
Transportation	CEL	Navy Case 63,961	Pile driver	License--system to place piles into the seafloor using pressure differential as driving force
Transportation	DWT	Pat. 4,132,500 Controllable and Programmable Fluid Flow Modulation System	To allow helicopters to fly at higher forward speeds	Helicopters--valve system to fly at forward velocities that are higher than conventional helicopters
Transportation	NTEC	Pat. 4,100,571 360 Nonprogrammed Visual System (See T2 123)	Visual simulation for flight training	Visual systems throughout aviation community

INDEX I

TABLE OF CONTENTS

	<u>Pages</u>
Technology Transfer Projects Indexed by Federal Agency Sponsors	I-2--I-4
Technology Transfer Projects Indexed by Foreign Agency Sponsors	I-5
Technology Transfer Projects Indexed by Industry and Small Business Sponsors	I-6
Technology Transfer Projects Indexed by Nonprofit Institution Sponsors	I-7
Technology Transfer Projects Indexed by State and Local Government Sponsors	I-8

INDEX I
FY 1979

TECHNOLOGY TRANSFER PROJECTS INDEXED BY FEDERAL AGENCY SPONSORS

	<u>Pages</u>
Ames Research Center, NASA	3-3, 3-5, 3-17, 4-22, 4-36, 4-38, 4-40
Bureau of Land Management, Dept. of Interior	3-28, 4-22
Bureau of Radiological Health, Food and Drug Administration	4-31
CNO Security Assistance Training Program	3-7, 4-24
Defense Advanced Research Projects Agency	3-6, 3-32, 4-6, 4-28
Defense Construction Supply Center	3-17, 4-5
Defense General Supply Center	4-5
Defense Mapping Agency	3-9, 3-23, 3-24, 4-20, 4-24
Defense Nuclear Agency	3-29, 4-6
Department of Commerce	3-2, 4-4
Department of Energy	3-3, 3-4, 3-11, 3-12, 3-14, 3-27, 4-1, 4-14, 4-15, 4-20, 4-30, 4-33, 4-38, 4-39, 4-40
Department of Health, Education, and Welfare	3-22, 4-41
Department of Transportation	3-3, 3-20, 3-23, 3-29, 3-32, 3-33, 4-1, 4-9, 4-23, 4-38
Environmental Research Laboratory, EPA	3-12, 3-14, 4-15, 4-40
Federal Aviation Administration, DOT	3-7, 3-32, 4-1, 4-21
Federal Highway Administration, DOT	3-26, 4-33
Federal Laboratory Consortium for Technology Transfer	3-12, 3-30, 4-43
Federal Railroad Administration, DOT	3-2, 3-31, 4-4, 4-33
Food and Drug Administration	3-22
George C. Marshall Space Flight Center, NASA	3-33, 4-33
Goddard Space Flight Center, NASA	3-4, 4-39

TECHNOLOGY TRANSFER PROJECTS INDEXED BY FEDERAL AGENCY SPONSORS

	<u>Pages</u>
Immigration and Naturalization Service, Dept. of Justice	3-26, 4-22
Independent Research and Development/Technology Utilization Office	3-18, 4-41
Joint Cruise Missiles Project Office	3-31, 4-8
Joint Logistics Command	3-2, 4-7
Kennedy Space Center, NASA	3-28, 4-22
Langley Research Center, NASA	3-3, 4-33
Lawrence Livermore Laboratory, DOE	3-4, 4-39
Lewis Research Center, NASA	3-9, 4-9
Los Alamos Scientific Laboratory, DOE	3-4, 4-39
Lyndon B. Johnson Space Center, NASA	3-11, 3-20, 3-31, 4-9, 4-33
Maritime Administration	3-2, 3-11, 404, 4-5
National Aeronautics and Space Agency	3-4, 3-15, 4-40
National Data Buoy Office, NOAA (Dept. of Commerce)	3-11, 3-23, 3-24, 4-20, 4-24
National Environmental Research EPA Center	3-28, 4-22
National Marine Fisheries	3-14, 3-27, 3-28, 4-5, 4-32, 4-46
National Oceanic and Atmospheric Administration	3-9, 3-18, 3-30, 4-21, 4-43
National Science Foundation	3-6, 3-7, 3-9, 3-13, 3-17, 3-18, 3-23,
Naval Air Systems Command	3-31, 3-33, 4-10, 4-11, 4-13, 4-15, 4-28, 4-29, 4-31, 4-32
Naval Electronics Systems Command	3-7, 3-8, 3-25, 4-28, 4-29, 4-31
Naval Facilities Engineering Command	3-19, 3-27, 4-27, 4-46
Naval Material Command	3-7, 3-9, 3-15, 3-18, 3-19, 4-10, 4-27, 4-31, 4-35

INDEX I

FY 1979

TECHNOLOGY TRANSFER PROJECTS INDEXED BY FEDERAL AGENCY SPONSORS

	<u>Pages</u>
Naval Medical Research and Development Command	3-20, 3-21, 4-16, 4-18
Naval Ocean Research and Development Activity	3-23, 3-27, 4-20
Naval Research Laboratory	3-18, 3-23, 3-25, 4-20, 4-29, 4-31
Naval Sea Systems Command	3-2, 3-3, 3-7, 3-8, 3-9, 3-13, 3-15, 3-17, 3-21, 3-24, 3-25, 3-27, 3-29, 3-31, 4-4, 4-5, 4-6, 4-12, 4-18, 4-19, 4-29, 4-30, 4-31, 4-32, 4-33, 4-34, 4-42
Naval Training Equipment Center	3-29, 4-35
Naval Underwater Systems Center	4-37
NAVOC	3-9, 3-14, 3-23, 4-24
Navy	4-1, 4-16
NAVY NATO SEASPARROW	3-25, 4-34
Nevada Operations Office, DOE	3-12, 4-40
Naval Postgraduate School	3-19, 4-27
Nuclear Regulatory Commission	3-6, 3-12, 3-17, 4-28, 4-30, 4-33
Office of Hazardous Material, DOT	3-31
Office of Naval Research	3-6, 3-7, 3-8, 3-10, 3-13, 3-14, 3-15 3-17, 3-20, 3-27, 3-28, 3-33, 4-14, 4-16, 4-28, 4-29, 4-30, 4-44, 4-45, 4-46
Physical Security Systems Directorate ESD/AFSC/USAF	3-26, 4-15
Rome Air Development Center, USAF	3-7, 3-8, 3-14, 4-5, 4-29
Safety/Isotope-Fuel Branch, DOE	3-15, 4-21
Sea Grant College Program	3-20, 4-14
Solar Energy Research Institute, DOE	3-12, 4-39, 4-40
Strategic Systems Project Office	3-6, 4-28

INDEX I

FY 1979

TECHNOLOGY TRANSFER PROJECTS INDEXED BY FEDERAL AGENCY SPONSORS

	<u>Pages</u>
U.S. Air Force	3-31, 4-8
U.S. Army Institute for the Behavioral and Social Sciences	3-20, 4-16
U.S. Coast Guard	3-2, 3-5, 3-9, 3-14, 3-15, 3-22, 3-23 3-27, 3-29, 3-33, 4-4, 4-5, 4-6, 4-9, 4-21, 4-22, 4-23
U.S. Forest Service	3-19, 4-27
U.S. Geological Survey, Dept. of Interior	3-27, 3-28, 4-25
U.S. Postal Service	3-9, 4-21
Veterans Administration	3-20, 3-22, 4-16, 4-22

INDEX I

FY 1979

TECHNOLOGY TRANSFER PROJECTS INDEXED BY FOREIGN AGENCY SPONSORS

	<u>Pages</u>
Great Britain	3-6, 4-10
International Government	3-11, 4-24

INDEX I

FY 1979

TECHNOLOGY TRANSFER PROJECTS INDEXED BY INDUSTRY AND SMALL BUSINESS SPONSORS

	<u>Pages</u>
Aerojet Ordnance and Manufacturing Company	3-4, 4-39
American Safety Flight System	3-5, 4-40
Avondale Shipyards, Inc.	3-2, 3-24, 4-4, 4-25
Bay Technical Associates, Inc.	3-24, 4-25
Beckman Instruments, Inc.	3-27, 4-26
Explosive Technology, Inc.	3-3, 4-38
Firestone Coated Fabrics Co., Inc.	3-5, 4-39
General Dynamics Convair	3-4, 4-38
Hughes Aircraft	3-4, 3-5, 4-38, 4-40
Louisiana Power and Light	3-24, 4-25
Martin-Marietta Aerospace	3-5, 4-40
Mississippi Power and Light	3-24, 4-25
M-R-S Manufacturing Co.	3-24, 4-25
NUS Corp.	3-24, 4-25
Production Control Systems, Inc.	3-24, 4-25
Raychem Corp.	3-27, 4-25
Royal Industries, Inc.	3-3, 4-38
Upjohn International	3-20, 4-16
Vought Helicopter, Inc.	3-5, 4-39

INDEX I

FY 1979

TECHNOLOGY TRANSFER PROJECTS INDEXED BY NONPROFIT INSTITUTION SPONSORS

	<u>Pages</u>
CTIP	• 3-30, 4-36
Institute for Acoustic Research	• 3-28, 4-25
International Research Group on Wood Preservation	• 3-27
Johns Hopkins University	• 3-15, 4-41
Johns Hopkins University, Applied Physics Laboratory	• 3-5, 4-21
Local Government Assistance Task Force	• 3-20, 4-16
Metal Properties Council	• 3-12, 4-30
National Science Foundation (CTIP)	• 3-18, 4-31, 4-41
New England Innovation Group	• 3-30, 4-37
Pacific Northwest Innovation Group	• 3-30, 4-23
POW Organizations	• 3-21, 4-16
Public Technology, Inc.	• 3-28
Rhode Island League of Cities and Towns	• 3-7, 4-36
Society of Naval Architects and Engineers	• 3-2, 4-4
University of California	• 3-11, 4-36
University of Connecticut	• 3-29, 4-17
Victoria Behavioral Research Assn., Ltd	• 3-29, 4-17

INDEX I

FY 1979

TECHNOLOGY TRANSFER PROJECTS INDEXED BY STATE AND LOCAL GOVERNMENT SPONSORS

	<u>Pages</u>
Anne Arundel County Schools	3-18, 4-46
Carson City, Nevada	3-17, 3-22, 4-27
Connecticut Conference of Municipalities	3-30, 4-36
Connecticut General Assembly	3-29, 4-36
San Diego, California (city and county)	3-30, 3-31, 4-23, 4-43
Santa Barbara County	3-14, 4-40
Santa Fe, New Mexico	3-10, 4-27
South Carolina Wildlife and Marine Resources Dept.	3-24, 4-25
University of California	4-22
University of California, Biomed and Surgery	3-20, 4-16
Western Kansas Ground Water Dist. #1	3-15, 4-41

APPENDIX A

NAVY TECHNOLOGY TRANSFER FOCAL POINTS

ANTISUBMARINE WARFARE SYSTEMS PROJECT OFFICE

H. Magid (Herbert), Code ASW-114
 Antisubmarine Warfare Systems Project Office
 Washington, DC 20362
 Phone: (202) 692-9140
 Autovon: 222-9140

CIVIL ENGINEERING LABORATORY

James Jenkins (Jim), Code L03C
 Civil Engineering Laboratory
 Naval Construction Battalion Center
 Port Hueneme, CA 93043
 Phone: (805) 982-4110
 Autovon: 360-4110

DAVID W. TAYLOR NAVAL SHIP R&D CENTER

B. V. Nakonechny (Basil), Code 012.2
 David W. Taylor Naval Ship Research and
 Development Center
 Bethesda, MD 20884
 Phone: (202) 227-1083/1037
 Autovon: 287-1083/1037

NAVY TECHNOLOGY TRANSFER FOCAL POINTSGIDEP

W. E. Arntz (Bill), Director
 Government-Industry Data Exchange Program
 Operations Center
 Fleet Analysis Center - Naval Weapons Station
 Seal Beach, Corona Annex
 Corona, CA 91720
 Phone: (714) 736-4677
 Autovon: 933-4677

MARINE CORPS DEVELOPMENT & EDUCATION COMMAND

J. Druzbick (John)
 Technical Adviser, Development Center
 Marine Corps Development and Education Command
 Quantico, VA 22134
 Phone: (703) 640-2412
 Autovon: 278-2412

NAVAL AEROSPACE MEDICAL RESEARCH LABORATORY

CDR Lewis E. Waideisen, Code L11
 Plans & Programs Officer
 Naval Aerospace Medical Research Laboratory
 Pensacola, FL 32508
 Phone: (904) 452-3286
 Autovon: 922-3286

NAVY TECHNOLOGY TRANSFER FOCAL POINTS

NAVAL AIR DEVELOPMENT CENTER

J. S. Bortman (Jerry), Code 7012
Naval Air Development Center
Warminster, PA 18974
Phone: (215) 441-3100
Autovon: 441-3100

NAVAL AIR TEST CENTER

R. B. Siegel (Ralph)
Naval Air Test Center
Patuxent River, MD 20670
Phone: (301) 863-4601
Autovon: 356-4601

NAVAL AIR ENGINEERING CENTER

M. A. Palamar (Michael), Code 9011
Plans and Programs Office
Naval Air Engineering Center
Lakehurst, NJ 08733
Phone: (201) 323-2648/2391
Autovon: 624-2648/2391

NAVAL AVIONICS CENTER

Terry Ising, Code 004
Naval Avionics Center
6000 East 21st Street
Indianapolis, IN 46218
Phone: (317) 353-3220
Autovon: 724-3220

NAVAL AIR PROPULSION CENTER

A. A. Martino (Albert), Code PE4
Naval Air Propulsion Center
Trenton, NJ 08628
Phone: (609) 896-5600, Ext. 758
Autovon: 443-5758

NAVAL BIOSCIENCES LABORATORY

LCDR W. M. Coleman III
Naval Biosciences Laboratory
Naval Supply Center
Oakland, CA 94625
Phone: (415) 832-5439
Autovon: 836-5439

NAVAL AIR SYSTEMS COMMAND

Commander
Naval Air Systems Command
Research and Technology Group, Code AIR 3021
Attn: S. J. Gorman (John)
Washington, DC 20361
Phone: (202) 692-3064
Autovon: 222-3064

NAVAL COASTAL SYSTEMS CENTER

J. Miller Epps, Code 700A
Naval Coastal Systems Center
Panama City, FL 32407
Phone: (904) 234-4209
Autovon: 436-4209

NAVY TECHNOLOGY TRANSFER FOCAL POINTS

NAVAL DENTAL RESEARCH INSTITUTE

LCDR L. D. Nelson (Lee)
Naval Dental Research Institute
Naval Base
Great Lakes, IL 60088
Phone: (312) 688-5647
Avtovon: 792-5647

NAVY EXPLOSIVE ORDNANCE DISPOSAL FACILITY

L. A. Dickinson (Lione)
Attn: Code D, Technical Director
Naval Explosive Ordnance Disposal Facility
Indian Head, MD 20640
Phone: (301) 743-4439
Avtovon: 364-4330

NAVAL ELECTRONIC SYSTEMS COMMAND

R. A. Wade (Ron), Code 30421
Naval Electronic Systems Command
Department of the Navy
National Center I
Washington, DC 20360
Phone: (202) 692-3741
Avtovon: 222-8741

NAVAL FACILITIES ENGINEERING COMMAND

Vance Hinch, Code 0311
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, VA 22332
Phone: (202) 325-8533
Avtovon: 221-8533

NAVAL ENVIRONMENTAL PREDICTION RESEARCH FACILITY

P. L. Hopkins (Preston), Code 02
Naval Electronic Systems Engineering Activity
Saint Inigoes, MD 20684
Phone: (301) 872-5021 (Direct Wash. No. 488-7704)
Avtovon: 356-3512

NAVAL HEALTH RESEARCH CENTER

Dr. M. Richlin (Milton), Code 8040
Naval Health Research Center
San Diego, CA 92152
Phone: (714) 225-7393
Avtovon: 933-7393

NAVAL MATERIAL COMMAND INDUSTRIAL RESOURCES DETACHMENT

B. S. Satier (Bill), Technical Director, Code 01
Naval Material Command Industrial Resources Detachment
Philadelphia, PA 19112
Phone: (215) 755-4891
Avtovon: 443-4891

NAVAL RESEARCH CENTER

LCDR Michael E. Brown
Naval Environmental Prediction Research Facility
Monterey, CA 93940
Phone: (408) 646-2814
Avtovon: 878-2814

NAVY TECHNOLOGY TRANSFER FOCAL POINTS

NAVAL MEDICAL RESEARCH & DEVELOPMENT COMMAND

N. Yanowsky (Nicholas), Code 49
Naval Medical Research & Development Command
Bethesda, MD 20014
Phone: (202) 295-1771
Autovon: 295-1771

NAVAL OCEAN SYSTEMS CENTER

D. H. Courter (Don), Code 013B
Naval Ocean Systems Center
San Diego, CA 92152
Phone: (714) 225-7455
Autovon: 933-7455

NAVAL MEDICAL RESEARCH INSTITUTE

CDR Vernon Schinski
Director of Planning & Programming
Naval Medical Research Institute
Bethesda, MD 20014
Phone: (301) 295-0057
Autovon: 295-0057

NAVAL OCEANOGRAPHIC OFFICE

C. D. Griffith (Clayton), Code 023
U. S. Naval Oceanographic Office
NSTL Station
Bay St. Louis, MS 39522
Phone: (601) 688-4368
Autovon: 485-4368

NAVAL OBSERVATORY

Dr. G. Meesterhout (Gart), Science Director, Code 6C
U. S. Naval Observatory
34th & Massachusetts Ave., NW
Washington, DC 20330
Phone: (202) 254-4540
Autovon: 294-4540

T. Pease (Thad), Code 2043
Manufacturing Technology Department
Naval Ordnance Station
Louisville, KY 40214
Phone: (502) 367-5641
Autovon: 989-5641

NAVAL OCEAN RESEARCH & DEVELOPMENT ACTIVITY

George E. Stanford, Jr., Code 115T
Requirements, Programs, Analysis & Planning
Naval Ocean Research & Development Activity
NSTL Station, Bay St. Louis, MS 39529
Phone: (601) 688-4790
Autovon: 485-4790

NAVAL ORDNANCE STATION (LOUISVILLE)

J. W. Creighton (John), Code 54CF
Naval Postgraduate School
Monterey, CA 93940
Phone: (408) 646-2048
Autovon: 878-2048

NAVAL POSTGRADUATE SCHOOL

NAVY TECHNOLOGY TRANSFER FOCAL POINTS

NAVAL RESEARCH LABORATORY

Richard Pulper (Dick), Code 1434
Naval Research Laboratory
Washington, DC 20375
Phone: (202) 767-3744
Autovon: 297-3744

NAVAL SEA SUPPORT CENTER, ATLANTIC

R. T. McGrady (Raymond), Code 91C
Naval Sea Support Center, Atlantic
St. Juliens Creek Annex
Portsmouth, VA 23702
Phone: (804) 393-7677
Autovon: 961-7677

NAVAL SEA SUPPORT CENTER, PACIFIC

D. A. Nealin (Don), Code 200
Naval Sea Support Center, Pacific
P. O. Box 80548
San Diego, CA 92138
Phone: (714) 225-3268
Autovon: 957-3268

NAVAL SEA SYSTEMS COMMAND

Stuart Marcus, Code SEA 003
Naval Sea Systems Command
Washington, DC 20362
Phone: (202) 692-9767
Autovon: 222-9767

NAVAL SHIP WEAPON SYSTEMS ENGINEERING STATION

Richard E. Wetzel, Code 4001
Head, Ship Systems Assessment Directorate
Naval Ship Weapons Engineering Station
Port Hueneme, CA 93043
Phone: (805) 982-4676
Autovon: 360-4676

NAVAL SUBMARINE MEDICAL RESEARCH LABORATORY

C. R. Carey (Charles), Code 03
Special Assistant Programs & Plans
Naval Submarine Medical Research Laboratory
Groton, CT 06340
Phone: (203) 449-3266
Autovon: 241-3266

NAVAL SUPPLY SYSTEMS COMMAND

C. E. Emberger (Charles), Code 0431F
Naval Supply Systems Command
Department of the Navy
Washington, DC 20376
Phone: (202) 697-4432
Autovon: 227-4561

NAVAL SURFACE WEAPONS CENTER

Bob Barash, Code D216
Naval Surface Weapons Center
White Oak Laboratory
Silver Spring, MD 20910
Phone: (301) 394-3038
Autovon: 290-3038

NAVY TECHNOLOGY TRANSFER FOCAL POINTS

NAVAL TRAINING EQUIPMENT CENTER

P. E. Wolf, Jr. (Franklin), Code N326
Naval Training Equipment Center
Orlando, FL 32813
Phone: (305) 646-4493, 5529
Autovon: 791-4493

NAVAL UNDERWATER SYSTEMS CENTER

Michael C. Ahrens, Code 0702
Naval Underwater Systems Center
New London Laboratory
New London, CT 06320
Phone: (203) 447-4908
Autovon: 636-4908

NAVAL WAR COLLEGE

Ramibal P. Costa
Deputy Dean of Administration
Naval War College
Newport, RI 02840
Phone: (401) 841-2260
Autovon: 948-2260

NAVAL WEAPONS CENTER

G. F. Linsteadt (George), Code 3203
Naval Weapons Center
China Lake, CA 93555
Phone: (714) 939-2305
Autovon: 245-2305

NAVAL WEAPONS STATION (YORKTOWN)

John Zehmer (Peter), Code 50
Naval Weapons Station
Yorktown, VA 23691
Phone: (804) 887-4763, 4715
Autovon: 953-4763, 4715

NAVAL WEAPONS SUPPORT CENTER

C. D. Robinson (Dale), Code 50
Naval Weapons Support Center
Crane, IN 47522
Phone: (812) 854-1282, 1358
Autovon: 482-1282, 1358

NAVY ASTRONAUTICS GROUP

CNOA W. R. McCoy (Bill), Code SPM-001
Navy Astronautics Group
Point Mugu, CA 93042
Phone: (805) 982-8827
Autovon: 351-8827

NAVY CLOTHING AND TEXTILE RESEARCH FACILITY

J. A. Mylotte (John), Code 13
Navy Clothing and Textile Research Facility
21 Strathmore Rd.
Natick, MA 01760
Phone: (617) 653-2672
Autovon: 955-2672

NAVY TECHNOLOGY TRANSFER FOCAL POINTS

NAVY PERSONNEL RESEARCH & DEVELOPMENT CENTER

Robert Thorpe, Code P401
Dr. P. Sands (Frank), Code P402
Navy Personnel Research & Development Center
San Diego, CA 92152
Phone: (714) 225-7424 (Thorpe)
(714) 225-7109 (Sands)
Autovon: 933-7424 (Thorpe)
933-7109 (Sands)

OFFICE OF NAVAL RESEARCH - BOSTON

F. S. Gardner (Frank)
Office of Naval Research - Boston
Building 114, Section D
666 Summer St.
Boston, MA 02210
Phone: (617) 542-6000, Ext. 329/319/112
Autovon: 955-8329/8319/8112

OFFICE OF NAVAL RESEARCH - CHICAGO

Dr. G. Sandoz (George), Code 490
Office of Naval Research - Chicago
536 South Clark St., Room 286
Chicago, IL 60605
Phone: (312) 353-6067

OFFICE OF NAVAL RESEARCH - PASADENA

Dr. L. E. Larimore (Lewis)
Office of Naval Research - Pasadena
1030 East Green St.
Pasadena, CA 91106
Phone: (213) 795-5971
Autovon: 360-2410

PACIFIC MISSILE TEST CENTER

Paul Erman, Code 0123
Pacific Missile Test Center
Point Mugu, CA 93042
Phone: (805) 982-8741
Autovon: 351-8741

NAVY TECHNOLOGY TRANSFER FOCAL POINTS

POLARIS MISSILE FACILITY - ATLANTIC

E. J. Durr (Edwin), Code SPC 053, Technical Staff
Polaris Missile Facility - Atlantic
Charleston, SC 29408
Phone: (803) 743-7851
Autovon: 794-7851

NAVAL ORDNANCE STATION (INDIAN HEAD)

C. L. Adams (Ted), Code PM4
Naval Ordnance Station
Indian Head, MD 20640
Phone: (301) 743-4421
Autovon: 364-4421

STRATEGIC WEAPONS FACILITY - PACIFIC

G. L. Fischer (Glenn), Code SPB 211
Strategic Weapons Facility - Pacific
Bremerton, WA 98315
Phone: (206) 396-4918
Autovon: 744-4918

TRIDENT SYSTEM PROJECT

J. L. Crone (John), Code PM2-001
Tech. Director, Scientific Development/Evaluation
c/o Project Manager, Trident System Project
Department of the Navy
Washington, DC 20362
Phone: (202) 692-7202
Autovon: 222-7202

U. S. NAVAL ACADEMY

Dr. R. D. Mathieu (Richard)
Director of Research
U. S. Naval Academy
Annapolis, MD 21402
Phone: (301) 267-2504

APPENDIX B

TABLE OF CONTENTS

	<u>Pages</u>
Technology Transfer Projects for Federal Agencies	B-2--B-4
Technology Transfer Projects for Foreign Governments	B-5
Technology Transfer Projects for Industry and Small Business	B-6
Technology Transfer Projects for Nonprofit Institutions	B-7
Technology Transfer Projects for State and Local Governments	B-8

APPENDIX B

FY 1979

TECHNOLOGY TRANSFER PROJECTS FOR FEDERAL AGENCIES
LIST OF SPONSORS

Ames Research Center, NASA

Behavioral and Social Sciences, U.S. Army

Bureau of Land Management, Department of the Interior

Defense Advanced Research Projects

Defense Construction Supply Center

Defense General Supply Center

Defense Mapping Agency

Defense Nuclear Agency

Department of Commerce

Department of Energy

Federal Aviation Administration

Federal Highway Administration, DOT

Federal Laboratory Consortium for Technology Transfer

Federal Railroad Administration, DOT

Food and Drug Administration

George C. Marshall Space Flight Center, NASA

Goddard Space Flight Center, NASA

Immigration and Naturalization, Department of Justice

Independent Research and Development/Technology Utilization

Joint Cruise Missiles Project Office

Joint Logistics Command

Lawrence Livermore Laboratory, ERDA

Lewis Research Center, NASA

Los Alamos Scientific Laboratory, Department of Energy
Lyndon B. Johnson Space Flight Center, NASA
Maritime Administration
National Aeronautics and Space Administration
National Data Buoy Project, NOAA
National Environmental Research Center, EPA
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
National Science Foundation
Naval Air Systems Command
Naval Electronics Systems Command
Naval Facilities Engineering Command
Naval Material Command
Naval Medical Research and Development Command
Naval Ocean Research and Development Activity
Naval Oceanographic Office
Naval Postgraduate School
Naval Research Center
Naval Sea Systems Command
Naval Training Equipment Center
Navy NATO SEASPARROW
Nevada Operations Office, Department of Energy
Nuclear Regulatory Commission
Office of Hazardous Material, DOT
Office of Naval Research
Physical Security Systems Directorate ESD/AFSC/USAF
Rome Air Development Center, USAF

Safety/Isotope-Fuel, Department of Energy

Sea Grant College Program

Solar Research Institute, Department of Energy

Strategic Systems Project Office

U.S. Coast Guard

U.S. Geological Survey, Department of the Interior

U.S. Navy

U.S. Postal Service

Various

Veterans Administration

APPENDIX B

FY 1979

TECHNOLOGY TRANSFER PROJECTS FOR FOREIGN GOVERNMENTS
LIST OF SPONSORS

Great Britain
International Government

APPENDIX B

FY 1979

TECHNOLOGY TRANSFER PROJECTS FOR INDUSTRY AND SMALL BUSINESS
LIST OF SPONSORS

Aerojet Ordnance Manufacturing Company

American Safety and Flight System

Avondale Shipyard, Inc.

Bay Technical Associates, Inc.

Beckman Instruments, Inc.

Explosive Technology, Inc.

Firestone Coated Fabrics Co., Inc.

General Dynamics

Hughes Aircraft Company

Louisiana Power and Light

Mississippi Power and Light

M-R-S Mfg. Co.

Nus Corp.

Production Control Systems, Inc.

Raychem Corp.

Royal Industries, Inc.

Upjohn International

Vought Helicopter, Inc.

APPENDIX B

FY 1979

TECHNOLOGY TRANSFER PROJECTS FOR NONPROFIT INSTITUTIONS
LIST OF SPONSORS

CTIP

Institute for Acoustical Research

International Research Group on Wood Preservation

National Science Foundation

New England Innovation Group

Metal Properties Council

Pacific Northwest Innovations Group

Rhode Island League of Cities and Towns

University of Connecticut

APPENDIX B

FY 1979

TECHNOLOGY TRANSFER PROJECTS FOR STATE AND LOCAL GOVERNMENTS
LIST OF SPONSORS

- California, San Diego (city and county)
California, Santa Barbara County
California, University of
California, University of BuMed and Surgery
Connecticut, Conference of Municipalities
Connecticut, General Assembly
Kansas Western Ground Water District #1
Maryland, Anne Arundel County Schools
Nevada, Carson City
New England Innovation Group
New Mexico, Santa Fe
South Carolina, Wildlife and Marine Resources Department

APPENDIX C

ABBREVIATIONS AND ACRONYMS

APL/JHU	Applied Physics Laboratory/Johns Hopkins University
CEL	Civil Engineering Laboratory
DARPA	Defense Advanced Research Projects
DOT	Department of Transportation
DWT	David W. Taylor Naval Ship Research and Development Center
FAA	Federal Aviation Administration
FATC	Fleet Analysis Center
GIDEP	Government-Industry Data Exchange Program
HEW	Department of Health, Education and Welfare
IRED/TU	Independent Research and Development/Technology Utilization
JCMPO	Joint Cruise Missiles Project Office
NADC	Naval Air Development Center
NAEC	Naval Air Engineering Center
NASA	National Aeronautics and Space Administration
NATC	Naval Air Test Center
NAVAIRSYSCOM	Naval Air Systems Command
NAVELECSYSCOM	Naval Electronics Systems Command
NAVFAC	Naval Facilities Command
NAVMATCOM	Naval Material Command
NAVOC	Naval Oceanographic Office
NAVSEASYSCOM	Naval Sea Systems Command
NBIOIOL	Naval Biosciences Laboratory
NCSC	Naval Coastal Systems Center

NHRC Naval Health Research Center
NMIFP Naval Mine Engineering Facility
NMRD Naval Medical Research and Development Command
NOAA National Oceanic and Atmospheric Administration
NOC Naval Oceanographic Office
NORDA Naval Ocean Research and Development Activity
NOSC Naval Ocean Systems Center
NPRDC Navy Personnel Research and Development Center
NPS Naval Postgraduate School
NRL Naval Research Laboratory
NSWC Naval Surface Weapons Center
NSWES Naval Ship Weapons Engineering Station
NTEC Navy Training Equipment Center
NUSC Naval Underwater Systems Center
NWC Naval Weapons Center
NWSC Naval Weapons Support Center
ONR Office of Naval Research
USNA U.S. Naval Academy